

**** WARNING ** WARNING ** WARNING ** WARNING ****
This document is intended for informational purposes only.

Users are cautioned that Caltrans does not assume any liability or responsibility based on these electronic files or for any defective or incomplete copying, excerpting, scanning, faxing or downloading of the contract documents. As always, for the official paper versions of the bidders and non-bidder packages, write to the California Department of Transportation, Plans and Bid Documents, Room 0200, P.O. Box 942874, Sacramento, CA 94272-0001, telephone (916) 654-4490 or fax (916) 654-7028. Office hours are 7:30 a.m. to 4:15 p.m. When ordering bidder or non-bidder packages it is important that you include a telephone and fax number, P.O. Box and street address so that you can receive addenda.

Note: Addenda information is NOT included with the electronic documents available via electronic file transfer. Only bidder or non-bidder package holders listed with the Caltrans Plans and Bid Documents section as described above will receive addenda information.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

NOTICE TO CONTRACTORS
AND
SPECIAL PROVISIONS
FOR CONSTRUCTION ON STATE HIGHWAY IN
SACRAMENTO AND YOLO COUNTIES AT VARIOUS LOCATIONS

DISTRICT 03, ROUTE 5,50,80

For Use in Connection with Standard Specifications Dated JULY 1999, Standard Plans Dated
JULY 1999, and Labor Surcharge and Equipment Rental Rates.

CONTRACT NO. 03-1M4304

03-Sac,Yol-5,50,80-Var

Bids Open: May 15, 2001

Dated: April 23, 2001

IMPORTANT SPECIAL NOTICES

- Attention is directed to the Notice to Contractor and Section 1, "Plans and Specifications," of the special provisions regarding references to the District and District Director's Office. The Office of the District Director for the Northern Region is located at Marysville.
- **Payment Bonds**
Attention is directed to Section 5 of the Special Provisions, regarding contract bonds. The payment bond shall be in a sum not less than one hundred percent of the total amount payable by the terms of the contract.

TABLE OF CONTENTS

NOTICE TO CONTRACTORS.....	1
COPY OF ENGINEER'S ESTIMATE	3
SPECIAL PROVISIONS	4
SECTION 1. SPECIFICATIONS AND PLANS.....	4
SECTION 2. PROPOSAL REQUIREMENTS AND CONDITIONS.....	4
2-1.01 GENERAL.....	4
2-1.02 DISABLED VETERAN BUSINESS ENTERPRISE (DVBE).....	4
2-1.03 DVBE GOAL FOR THIS PROJECT.....	5
2-1.04 SUBMISSION OF DVBE INFORMATION	6
2-1.05 SMALL BUSINESS PREFERENCE.....	6
2-1.06 CALIFORNIA COMPANY PREFERENCE.....	7
SECTION 3. AWARD AND EXECUTION OF CONTRACT.....	7
SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES	8
SECTION 5. GENERAL	8
SECTION 5-1. MISCELLANEOUS	8
5-1.01 PLANS AND WORKING DRAWINGS	8
5-1.011 EXAMINATION OF PLANS, SPECIFICATIONS, CONTRACT, AND SITE OF WORK	8
5-1.012 DIFFERING SITE CONDITIONS.....	9
5-1.015 LABORATORY	9
5-1.017 CONTRACT BONDS	9
5-1.018 EXCAVATION SAFETY PLANS	9
5-1.019 COST REDUCTION INCENTIVE.....	10
5-1.02 LABOR NONDISCRIMINATION	10
5-1.03 INTEREST ON PAYMENTS	10
5-1.031 FINAL PAYMENT AND CLAIMS.....	10
5-1.04 PUBLIC SAFETY	11
5-1.05 SURFACE MINING AND RECLAMATION ACT.....	12
5-1.06 REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES.....	12
5-1.07 YEAR 2000 COMPLIANCE.....	12
5-1.08 SUBCONTRACTOR AND DVBE RECORDS.....	12
5-1.086 PERFORMANCE OF DVBE SUBCONTRACTORS AND SUPPLIERS	12
5-1.09 SUBCONTRACTING.....	13
5-1.10 PROMPT PROGRESS PAYMENT TO SUBCONTRACTORS	13
5-1.11 PARTNERING	13
5-1.12 AREAS FOR CONTRACTOR'S USE	14
5-1.13 PAYMENTS.....	14
SECTION 6. (BLANK).....	14
SECTION 7. (BLANK).....	14
SECTION 8. MATERIALS	14
SECTION 8-1. MISCELLANEOUS	14
8-1.01 SUBSTITUTION OF NON-METRIC MATERIALS AND PRODUCTS	14
8-1.02 PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS	20
SECTION 8-2. (BLANK)	25
SECTION 8-3. (BLANK)	25
SECTION 9. (BLANK).....	25
SECTION 10. CONSTRUCTION DETAILS.....	25
SECTION 10-1. GENERAL	25
10-1.01 ORDER OF WORK.....	25
10-1.02 WATER POLLUTION CONTROL.....	25
WATER POLLUTION CONTROL PROGRAM PREPARATION, APPROVAL AND UPDATES	26
WPCP IMPLEMENTATION	27
MAINTENANCE	27
PAYMENT	28
10-1.03 COOPERATION	28

10-1.04	PROGRESS SCHEDULE	28
10-1.05	OBSTRUCTIONS	28
10-1.06	CONSTRUCTION AREA TRAFFIC CONTROL DEVICES	28
10-1.07	CONSTRUCTION AREA SIGNS	29
10-1.08	MAINTAINING TRAFFIC.....	29
10-1.09	CLOSURE REQUIREMENTS AND CONDITIONS	36
	CLOSURE SCHEDULE	36
	CONTINGENCY PLAN	36
	LATE REOPENING OF CLOSURES	36
	COMPENSATION	37
10-1.10	CONSTRUCTION ZONE ENHANCED ENFORCEMENT	37
10-1.11	TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE.....	38
10-1.12	TEMPORARY PAVEMENT DELINEATION	38
	GENERAL	38
	TEMPORARY LANELINE AND CENTERLINE DELINEATION	39
	TEMPORARY EDGELINE DELINEATION	39
10-1.13	PORTABLE CHANGEABLE MESSAGE SIGN.....	40
10-1.14	TEMPORARY CRASH CUSHION MODULE.....	40
	GENERAL	40
	MATERIALS.....	40
	INSTALLATION	41
	MEASUREMENT AND PAYMENT	41
10-1.15	REPLACE CONCRETE PAVEMENT (FAST-SETTING HYDRAULIC CEMENT CONCRETE).....	41
	Quality Control Plan	48
	Quality Control Inspection, Sampling and Testing.....	49
	Trial Slab and Process Control Testing	49

STANDARD PLANS LIST

The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. The Revised Standard Plans (RSP) and New Standard Plans (NSP) which apply to this contract are included as individual sheets of the project plans.

A10A	Abbreviations
A10B	Symbols
T1A	Temporary Crash Cushion, Sand Filled (Unidirectional)
T1B	Temporary Crash Cushion, Sand Filled (Bidirectional)
RSP T2	Temporary Crash Cushion, Sand Filled (Shoulder Installations)
T3	Temporary Railing (Type K)
T10	Traffic Control System for Lane Closure On Freeways and Expressways

DEPARTMENT OF TRANSPORTATION

NOTICE TO CONTRACTORS

CONTRACT NO. 03-1M4304

03-Sac,Yol-5,50,80-Var

Sealed proposals for the work shown on the plans entitled:

**STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROJECT PLANS FOR CONSTRUCTION
ON STATE HIGHWAY IN SACRAMENTO AND YOLO COUNTIES AT VARIOUS LOCATIONS**

will be received at the Department of Transportation, 1120 N Street, Room 0200, MS #26, Sacramento, CA 95814, until 2 o'clock p.m. on May 15, 2001, at which time they will be publicly opened and read in Room 0100 at the same address.

Proposal forms for this work are included in a separate book entitled:

**STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROPOSAL AND CONTRACT FOR
CONSTRUCTION ON STATE HIGHWAY IN SACRAMENTO AND YOLO COUNTIES AT VARIOUS
LOCATIONS**

General work description: Replace existing concrete pavement with fast setting hydraulic cement concrete.

This project has a goal of 3 percent disabled veteran business enterprise (DVBE) participation.

No prebid meeting is scheduled for this project.

Bids are required for the entire work described herein.

At the time this contract is awarded, the Contractor shall possess either a Class A license or one of the following Class C licenses: C-8,

The Contractor must also be properly licensed at the time the bid is submitted, except that on a joint venture bid a joint venture license may be obtained by a combination of licenses after bid opening but before award in conformance with Business and Professions Code, Section 7029.1.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

Preference will be granted to bidders properly certified as a "Small Business" as determined by the Department of General Services, Office of Small Business Certification and Resources at the time of bid opening in conformance with the provisions in Section 2-1.05, "Small Business Preference," of the special provisions, and Section 1896 et seq, Title 2, California Code of Regulations. A form for requesting a "Small Business" preference is included with the bid documents. Applications for status as a "Small Business" must be submitted to the Department of General Services, Office of Small Business Certification and Resources, 1531 "I" Street, Second Floor, Sacramento, CA 95814, Telephone No. (916) 322-5060.

A reciprocal preference will be granted to "California company" bidders in conformance with Section 6107 of the Public Contract Code. (See Sections 2 and 3 of the special provisions.) A form for indicating whether bidders are or are not a "California company" is included in the bid documents and is to be filled in and signed by all bidders.

The District in which the work for this project is located has been incorporated into the Department's Northern Region. References in the Standard Specifications or in the special provisions to the district shall be deemed to mean the Northern Region. The office of the District Director for the Northern Region is located at Marysville.

Project plans, special provisions, and proposal forms for bidding this project can only be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, MS #26, Transportation Building, 1120 N Street, Sacramento, California 95814, FAX No. (916) 654-7028, Telephone No. (916) 654-4490. Use FAX orders to expedite orders for project plans, special provisions and proposal forms. FAX orders must include credit card charge number, card expiration date and authorizing signature. Project plans, special provisions, and proposal forms may be seen at the above Department of Transportation office and at the offices of the District Directors of Transportation at Irvine, Oakland, and the district in which the work is situated. Standard Specifications and Standard Plans are available through the State of California, Department of Transportation, Publications Unit, 1900 Royal Oaks Drive, Sacramento, CA 95815, Telephone No. (916) 445-3520.

Cross sections for this project are not available.

The successful bidder shall furnish a payment bond and a performance bond.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at the Labor Compliance Office at the offices of the District Director of Transportation for the district in which the work is situated, and available from the California Department of Industrial Relations' Internet Web Site at: <http://www.dir.ca.gov>. Future effective general prevailing wage rates which have been predetermined and are on file with the Department of Industrial Relations are referenced but not printed in the general prevailing wage rates.

DEPARTMENT OF TRANSPORTATION

Deputy Director Transportation Engineering

Dated April 23, 2001

HZ

COPY OF ENGINEER'S ESTIMATE
(NOT TO BE USED FOR BIDDING PURPOSES)
03-1M4304

Item	Item Code	Item	Unit of Measure	Estimated Quantity
1 (S)	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM
2 (S)	128650	PORTABLE CHANGEABLE MESSAGE SIGN	LS	LUMP SUM
3	021174	REPLACE CONCRETE PAVEMENT (FAST SETTING HYDRAULIC CEMENT CONCRETE)	M3	1120

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

Annexed to Contract No. 03-1M4304

SECTION 1. SPECIFICATIONS AND PLANS

The work embraced herein shall conform to the provisions in the Standard Specifications dated July 1999, and the Standard Plans dated July 1999, of the Department of Transportation insofar as the same may apply, and these special provisions.

Amendments to the Standard Specifications set forth in these special provisions shall be considered as part of the Standard Specifications for the purposes set forth in Section 5-1.04, "Coordination and Interpretation of Plans, Standard Specifications and Special Provisions," of the Standard Specifications. Whenever either the term "Standard Specifications is amended" or the term "Standard Specifications are amended" is used in the special provisions, the indented text or table following the term shall be considered an amendment to the Standard Specifications. In case of conflict between such amendments and the Standard Specifications, the amendments shall take precedence over and be used in lieu of the conflicting portions.

The District in which the work for this project is located has been incorporated into the Department's Northern Region. References in the Standard Specifications or in these special provisions to the district shall be deemed to mean the Northern Region. The office of the District Director for the Northern Region is located at Marysville.

In case of conflict between the Standard Specifications and these special provisions, the special provisions shall take precedence over and shall be used in lieu of the conflicting portions.

SECTION 2. PROPOSAL REQUIREMENTS AND CONDITIONS

2-1.01 GENERAL

The bidder's attention is directed to the provisions in Section 2, "Proposal Requirements and Conditions," of the Standard Specifications and these special provisions for the requirements and conditions which the bidder must observe in the preparation of the proposal form and the submission of the bid.

In addition to the subcontractors required to be listed in conformance with Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications, each proposal shall have listed therein the name and address of each DVBE subcontractor to be used for credit in meeting the goal, and to whom the bidder proposes to directly subcontract portions of the work. The list of subcontractors shall also set forth the portion of work that will be performed by each subcontractor listed. A sheet for listing the subcontractors is included in the Proposal.

The Bidder's Bond form mentioned in the last paragraph in Section 2-1.07, "Proposal Guaranty," of the Standard Specifications will be found following the signature page of the Proposal.

In conformance with Public Contract Code Section 7106, a Noncollusion Affidavit is included in the Proposal. Signing the Proposal shall also constitute signature of the Noncollusion Affidavit.

Submit request for substitution of an "or equal" item, and the data substantiating the request to the Department of Transportation, P.O. Box 911, Marysville, CA 95901, Attn: NRCO/Contract Administration Engineer, so that the request is received by the Department by close of business on the fourth day, not including Saturdays, Sundays and legal holidays, following bid opening.

2-1.02 DISABLED VETERAN BUSINESS ENTERPRISE (DVBE)

Section 10115 of the Public Contract Code requires the Department to implement provisions to establish a goal for Disabled Veterans Business Enterprise (DVBE) in contracts.

It is the policy of the Department that Disabled Veteran Business Enterprise (DVBE) shall have the maximum opportunity to participate in the performance of contracts financed solely with state funds. The Contractor shall ensure that DVBEs have the maximum opportunity to participate in the performance of this contract and shall take all necessary and reasonable steps for this assurance. The Contractor shall not discriminate on the basis of race, color, national origin, or sex in

the award and performance of subcontracts. Failure to carry out the requirements of this paragraph shall constitute a breach of contract and may result in termination of this contract or other remedy the Department may deem appropriate.

Bidder's attention is directed to the following:

- A. "Disabled Veteran Business Enterprise" (DVBE) means a business concern certified as a DVBE by the Office of Small Business Certification and Resources, Department of General Services.
- B. A DVBE may participate as a prime contractor, subcontractor, joint venture partner with a prime or subcontractor, or vendor of material or supplies.
- C. Credit for DVBE prime contractors will be 100 percent.
- D. A DVBE joint venture partner must be responsible for specific contract items of work, or portions thereof. Responsibility means actually performing, managing and supervising the work with its own forces. The DVBE joint venture partner must share in the ownership, control, management responsibilities, risks and profits of the joint venture. The DVBE joint venturer must submit the joint venture agreement with the Caltrans Bidder DVBE Information form required in Section 2-1.04, "Submission of DVBE Information," elsewhere in these special provisions.
- E. A DVBE must perform a commercially useful function, i.e., must be responsible for the execution of a distinct element of the work and must carry out its responsibility by actually performing, managing and supervising the work.
- F. Credit for DVBE vendors of materials or supplies is limited to 60 percent of the amount to be paid to the vendor for the material unless the vendor manufactures or substantially alters the goods.
- G. Credit for trucking by DVBEs will be as follows:
 - 1. One hundred percent of the amount to be paid when a DVBE trucker will perform the trucking with his/her own trucks, tractors and employees.
 - 2. Twenty percent of the amount to be paid to DVBE trucking brokers who do not have a "certified roster."
 - 3. One hundred percent of the amount to be paid to DVBE trucking brokers who have signed agreements that all trucking will be performed by DVBE truckers if credit is toward the DVBE goal, a "certified roster" showing that all trucks are owned by DVBEs, and a signed statement on the "certified roster" that indicates that 100 percent of revenue paid by the broker will be paid to the DVBEs listed on the "certified roster."
 - 4. Twenty percent of the amount to be paid to trucking brokers who are not a DVBE but who have signed agreements with DVBE truckers assuring that at least 20 percent of the trucking will be performed by DVBE truckers if credit is toward the DVBE goal, a "certified roster" showing that at least 20 percent of the number of trucks are owned by DVBE truckers, and a signed statement on the "certified roster" that indicates that at least 20 percent of the revenue paid by the broker will be paid to the DVBEs listed on the "certified roster."

The "certified roster" referred to herein shall conform to the requirements in Section 2-1.04, "Submission Of DVBE Information," elsewhere in these special provisions.

- H. DVBEs and DVBE joint venture partners must be certified DVBEs as determined by the Department of General Services, Office of Small Business Certification and Resources, 1531 "I" Street, Second Floor, Sacramento, CA 95814, on the date bids for the project are opened before credit may be allowed toward the DVBE goal. It is the Contractor's responsibility to verify that DVBEs are certified.
- I. Noncompliance by the Contractor with these requirements constitutes a breach of this contract and may result in termination of the contract or other appropriate remedy for a breach of this contract.

2-1.03 DVBE GOAL FOR THIS PROJECT

The Department has established the following goal for Disabled Veteran Business Enterprise (DVBE) participation for this project:

Disabled Veteran Business Enterprise (DVBE): 3 percent.

It is the bidder's responsibility to make a sufficient portion of the work available to subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DVBE subcontractors and suppliers, so as to assure meeting the goal for DVBE participation.

The Office of Small Business Certification and Resources, Department of General Services, may be contacted at (916) 322-5060 or visit their internet web site at <http://www.osmb.dgs.ca.gov/> for program information and certification status. The Department's Business Enterprise Program may also be contacted at (916) 227-9599 or the internet web site at <http://www.dot.ca.gov/hq/bep/>.

2-1.04 SUBMISSION OF DVBE INFORMATION

The required DVBE information shall be submitted on the "CALTRANS BIDDER - DVBE INFORMATION" form included in the Proposal. If this information is not submitted with the bid, the DVBE information forms shall be removed from the documents prior to submitting the bid.

It is the bidder's responsibility to make enough work available to DVBEs and to select those portions of the work or material needs consistent with the available DVBEs to meet the goal for DVBE participation or to provide information to establish that, prior to bidding, the bidder made adequate good faith efforts to do so.

If the DVBE information is not submitted with the bid, the apparent successful bidder (low bidder), the second low bidder and the third low bidder shall submit the DVBE information to the Department of Transportation, 1120 N Street, Room 0200, MS #26, Sacramento, California 95814 so the information is received by the Department no later than 4:00 p.m. on the fourth day, not including Saturdays, Sundays and legal holidays, following bid opening. DVBE information sent by U.S. Postal Service certified mail with return receipt and certificate of mailing and mailed on or before the third day, not including Saturdays, Sundays and legal holidays, following bid opening will be accepted even if it is received after the fourth day following bid opening. Failure to submit the required DVBE information by the time specified will be grounds for finding the bid or proposal nonresponsive. Other bidders need not submit DVBE information unless requested to do so by the Department.

The bidder's DVBE information shall establish that good faith efforts to meet the DVBE goal have been made. To establish good faith efforts, the bidder shall demonstrate that the goal will be met or that, prior to bidding, adequate good faith efforts to meet the goal were made.

Bidders are cautioned that even though their submittal indicates they will meet the stated DVBE goal, their submittal should also include their adequate good faith efforts information along with their DVBE goal information to protect their eligibility for award of the contract in the event the Department, in its review, finds that the goal has not been met.

The bidder's DVBE information shall include the names of DVBE firms that will participate, with a complete description of work or supplies to be provided by each, the dollar value of each DVBE transaction, and a written confirmation from the DVBE that it is participating in the contract. A copy of the DVBE's quote will serve as written confirmation that the DVBE is participating in the contract. When 100 percent of a contract item of work is not to be performed or furnished by a DVBE, a description of the exact portion of that work to be performed or furnished by that DVBE shall be included in the DVBE information, including the planned location of that work. The work that a DVBE prime contractor has committed to performing with its own forces as well as the work that it has committed to be performed by DVBE subcontractors, suppliers and trucking companies will count toward the goal.

If credit for trucking by a DVBE trucking broker is shown on the bidder's information as 100 percent of the revenue to be paid by the broker is to be paid to DVBE truckers, a "certified roster" of the broker's trucks to be used must be included. The "certified roster" must indicate that all the trucks are owned by certified DVBEs and must show the DVBE truck numbers, owner's name, Public Utilities Commission Cal-T numbers, and the DVBE certification numbers. The roster must indicate that all revenue paid by the broker will be paid to DVBEs listed on the "certified roster".

If credit for trucking by a trucking broker who is not a DVBE is shown in the bidder's information, a "certified roster" of the broker's trucks to be used must be included. The "certified roster" must indicate that at least 20 percent of the broker's trucks are owned by certified DVBEs and must show the DVBE truck numbers, owner's name, Public Utilities Commission Cal-T numbers, and the DVBE certification number. The roster must indicate that at least 20 percent of the revenue paid by the broker will be paid to DVBEs listed on the "certified roster".

A bidder shall be deemed to have made good faith efforts upon submittal, within time limits specified by the Department, of documentary evidence that all of the following actions were taken:

- A. Contact was made with the Office of Small Business Certification and Resources (OSBCR), Department of General Services or their web site at <http://www.osmb.dgs.ca.gov/> to identify Disabled Veteran Business Enterprises.
- B. Advertising was published in trade media and media focusing on Disabled Veteran Business Enterprises, unless time limits imposed by the Department do not permit that advertising.
- C. Invitations to bid were submitted to potential Disabled Veteran Business Enterprise contractors.
- D. Available Disabled Veteran Business Enterprises were considered.

2-1.05 SMALL BUSINESS PREFERENCE

Attention is directed to "Award and Execution of Contract" of these special provisions.

Attention is also directed to the Small Business Procurement and Contract Act, Government Code Section 14835, et seq and Title 2, California Code of Regulations, Section 1896, et seq.

Bidders who wish to be classified as a Small Business under the provisions of those laws and regulations, shall be certified as Small Business by the Department of General Services, Office of Small Business Certification and Resources, 1531 "I" Street, Second Floor, Sacramento, CA 95814.

To request Small Business Preference, bidders shall fill out and sign the Request for Small Business Preference form in the Proposal and shall attach a copy of their Office of Small Business Certification and Resources (OSBCR) small business certification letter to the form. The bidder's signature on the Request for Small Business Preference certifies, under penalty of perjury, that the bidder is certified as Small Business at the time of bid opening and further certifies, under penalty of perjury, that under the following conditions, at least 50 percent of the subcontractors to be utilized on the project are either certified Small Business or have applied for Small Business certification by bid opening date and are subsequently granted Small Business certification.

The conditions requiring the aforementioned 50 percent level of subcontracting by Small Business subcontractors apply if:

- A. The lowest responsible bid for the project exceeds \$100,000; and
- B. The project work to be performed requires a Class A or a Class B contractor's license; and
- C. Two or more subcontractors will be used.

If the above conditions apply and Small Business Preference is granted in the award of the contract, the 50 percent Small Business subcontractor utilization level shall be maintained throughout the life of the contract.

2-1.06 CALIFORNIA COMPANY PREFERENCE

Attention is directed to "Award and Execution of Contract" of these special provisions.

In conformance with the requirements of Section 6107 of the Public Contract Code, a "California company" will be granted a reciprocal preference for bid comparison purposes as against a nonresident contractor from any state that gives or requires a preference to be given contractors from that state on its public entity construction contracts.

A "California company" means a sole proprietorship, partnership, joint venture, corporation, or other business entity that was a licensed California contractor on the date when bids for the public contract were opened and meets one of the following:

- A. Has its principal place of business in California.
- B. Has its principal place of business in a state in which there is no local contractor preference on construction contracts.
- C. Has its principal place of business in a state in which there is a local contractor construction preference and the contractor has paid not less than \$5000 in sales or use taxes to California for construction related activity for each of the five years immediately preceding the submission of the bid.

To carry out the "California company" reciprocal preference requirements of Section 6107 of the Public Contract Code, all bidders shall fill out and sign the California Company Preference form in the Proposal. The bidder's signature on the California Company Preference form certifies, under penalty of perjury, that the bidder is or is not a "California company" and if not, the amount of the preference applied by the state of the nonresident Contractor.

A nonresident Contractor shall disclose any and all bid preferences provided to the nonresident Contractor by the state or country in which the nonresident Contractor has its principal place of business.

Proposals without the California Company Preference form filled out and signed may be rejected.

SECTION 3. AWARD AND EXECUTION OF CONTRACT

The bidder's attention is directed to the provisions in Section 3, "Award and Execution of Contract," of the Standard Specifications and these special provisions for the requirements and conditions concerning award and execution of contract.

The award of the contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed and who has met the goal for DVBE participation or has demonstrated, to the satisfaction of the Department, adequate good faith efforts to do so. Meeting the goal for DVBE participation or demonstrating, to the satisfaction of the Department, adequate good faith efforts to do so is a condition for being eligible for award of contract.

A "Payee Data Record" form will be included in the contract documents to be executed by the successful bidder. The purpose of the form is to facilitate the collection of taxpayer identification data. The form shall be completed and returned to the Department by the successful bidder with the executed contract and contract bonds. For the purposes of the form, payee shall be deemed to mean the successful bidder. The form is not to be completed for subcontractors or suppliers. Failure to complete and return the "Payee Data Record" form to the Department as provided herein will result in the retention of 20 percent of payments due the contractor and penalties of up to \$20,000. This retention of payments for failure to complete the "Payee Data Record" form is in addition to any other retention of payments due the Contractor.

Attention is also directed to "Small Business Preference" of these special provisions. Any bidder who is certified as a Small Business by the Department of General Services, Office of Small Business Certification and Resources will be allowed a preference in the award of this contract, if it be awarded, under the following conditions:

- A. The apparent low bidder is not certified as a Small Business, or has not filled out and signed the Request for Small Business Preference included with the bid documents and attached a copy of their Office of Small Business Certification and Resources (OSBCR) small business certification letter to the form; and
- B. The bidder filled out and signed the Request for Small Business Preference form included with the bid documents and attached a copy of their Office of Small Business Certification and Resources (OSBCR) small business certification letter to the form.

The small business preference will be a reduction in the bid submitted by the small business contractor, for bid comparison purposes, by an amount equal to 5 percent of the amount bid by the apparent low bidder, the amount not to exceed \$50,000. If this reduction results in the small business contractor becoming the low bidder, then the contract will be awarded to the small business contractor on the basis of the actual bid of the small business contractor notwithstanding the reduced bid price used for bid comparison purposes.

Attention is also directed to "California Company Preference" of these special provisions.

The amount of the California company reciprocal preference shall be equal to the amount of the preference applied by the state of the nonresident contractor with the lowest responsive bid, except where the "California company" is eligible for a California Small Business Preference, in which case the preference applied shall be the greater of the two, but not both.

If the bidder submitting the lowest responsive bid is not a "California company" and with the benefit of the reciprocal preference, a "California company's" responsive bid is equal to or less than the original lowest responsive bid, the "California company" will be awarded the contract at its submitted bid price except as provided below.

Small business bidders shall have precedence over nonsmall business bidders in that the application of the "California company" preference for which nonsmall business bidders may be eligible shall not result in the denial of the award to a small business bidder.

SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES

Attention is directed to the provisions in Section 8-1.03, "Beginning of Work," in Section 8-1.06, "Time of Completion," and in Section 8-1.07, "Liquidated Damages," of the Standard Specifications and these special provisions.

The Contractor shall begin work within 45 calendar days after the contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department of Transportation.

The work shall be diligently prosecuted to completion before the expiration of **35 WORKING DAYS** beginning on the date that trial slabs and test samples are completed and approved or beginning on the forty-fifth calendar day after approval of the contract, whichever occurs first.

The Contractor shall pay to the State of California the sum of \$ 1,500.00 per day, for each and every calendar day's delay in finishing the work in excess of the number of working days prescribed above.

The 72 hours advance notice before beginning work referred to in Section 8-1.03, "Beginning of Work," of the Standard Specifications is changed to 5 days advance notice for this project.

SECTION 5. GENERAL

SECTION 5-1. MISCELLANEOUS

5-1.01 PLANS AND WORKING DRAWINGS

When the specifications require working drawings to be submitted to the Division of Structure Design, the drawings shall be submitted to: Division of Structure Design, Documents Unit, Mail Station 9, 1801 30th Street, Sacramento, CA 95816, Telephone 916 227-8252.

5-1.011 EXAMINATION OF PLANS, SPECIFICATIONS, CONTRACT, AND SITE OF WORK

The second paragraph of Section 2-1.03, "Examination of Plans, Specifications, Contract, and Site of Work," of the Standard Specifications is amended to read:

- Where the Department has made investigations of site conditions, including subsurface conditions in areas where work is to be performed under the contract, or in other areas, some of which may constitute possible local material sources, bidders or Contractors may, upon written request, inspect the records of the Department as to those investigations subject to and upon the conditions hereinafter set forth.

Attention is directed to "Differing Site Conditions" of these special provisions regarding physical conditions at the site which may differ from those indicated in "Materials Information," log of test borings or other geotechnical information obtained by the Department's investigation of site conditions.

5-1.012 DIFFERING SITE CONDITIONS

Attention is directed to Section 5-1.116, "Differing Site Conditions," of the Standard Specifications.

During the progress of the work, if subsurface or latent conditions are encountered at the site differing materially from those indicated in the "Materials Information," log of test borings, other geotechnical data obtained by the Department's investigation of subsurface conditions, or an examination of the conditions above ground at the site, the party discovering those conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed.

The Contractor will be allowed 15 days from the notification of the Engineer's determination of whether or not an adjustment of the contract is warranted, in which to file a notice of potential claim in conformance with the provisions of Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications and as specified herein; otherwise the decision of the Engineer shall be deemed to have been accepted by the Contractor as correct. The notice of potential claim shall set forth in what respects the Contractor's position differs from the Engineer's determination and provide any additional information obtained by the Contractor, including but not limited to additional geotechnical data. The notice of potential claim shall be accompanied by the Contractor's certification that the following were made in preparation of the bid: a review of the contract, a review of the "Materials Information," a review of the log of test borings and other records of geotechnical data to the extent they were made available to bidders prior to the opening of bids, and an examination of the conditions above ground at the site. Supplementary information, obtained by the Contractor subsequent to the filing of the notice of potential claim, shall be submitted to the Engineer in an expeditious manner.

5-1.015 LABORATORY

When a reference is made in the specifications to the "Laboratory," the reference shall mean the Division of Materials Engineering and Testing Services and the Division of Structural Foundations of the Department of Transportation, or established laboratories of the various Districts of the Department, or other laboratories authorized by the Department to test materials and work involved in the contract. When a reference is made in the specifications to the "Transportation Laboratory," the reference shall mean the Division of Materials Engineering and Testing Services and the Division of Structural Foundations, located at 5900 Folsom Boulevard, Sacramento, CA 95819, Telephone (916) 227-7000.

5-1.017 CONTRACT BONDS

Attention is directed to Section 3-1.02, "Contract Bonds," of the Standard Specifications and these special provisions.

The payment bond shall be in a sum not less than one hundred percent of the total amount payable by the terms of the contract.

5-1.018 EXCAVATION SAFETY PLANS

Section 5-1.02A, "Trench Excavation Safety Plans," of the Standard Specifications is amended to read:

5-1.02A Excavation Safety Plans

- The Construction Safety Orders of the Division of Occupational Safety and Health shall apply to all excavations. For all excavations 1.5 m or more in depth, the Contractor shall submit to the Engineer a detailed plan showing the design and details of the protective systems to be provided for worker protection from the hazard of caving ground during excavation. The detailed plan shall include any tabulated data and any design calculations used in the preparation of the plan. Excavation shall not begin until the detailed plan has been reviewed and approved by the Engineer.
- Detailed plans of protective systems for which the Construction Safety Orders require design by a registered professional engineer shall be prepared and signed by an engineer who is registered as a Civil Engineer in the State of California, and shall include the soil classification, soil properties, soil design calculations that demonstrate adequate stability of the protective system, and any other design calculations used in the preparation of the plan.
- No plan shall allow the use of a protective system less effective than that required by the Construction Safety Orders.
- If the detailed plan includes designs of protective systems developed only from the allowable configurations and slopes, or Appendices, contained in the Construction Safety Orders, the plan shall be submitted at least 5 days before the Contractor intends to begin excavation. If the detailed plan includes designs of protective systems developed from tabulated data, or designs for which design by a registered professional engineer is required, the plan shall be submitted at least 3 weeks before the Contractor intends to begin excavation.
- Attention is directed to Section 7-1.01E, "Trench Safety."

The third paragraph of Section 19-1.02, "Preservation of Property," of the Standard Specifications is amended to read:

- In addition to the provisions in Sections 5-1.02, "Plans and Working Drawings," and 5-1.02A, "Excavation Safety Plans," detailed plans of the protective systems for excavations on or affecting railroad property will be reviewed for adequacy of protection provided for railroad facilities, property, and traffic. These plans shall be submitted at least 9 weeks before the Contractor intends to begin excavation requiring the protective systems. Approval by the Engineer of the detailed plans for the protective systems will be contingent upon the plans being satisfactory to the railroad company involved.

5-1.019 COST REDUCTION INCENTIVE

Attention is directed to Section 5-1.14, "Cost Reduction Incentive," of the Standard Specifications.

Prior to preparing a cost reduction proposal, the Contractor shall request a meeting with the Engineer to discuss the proposal in concept and to determine the merit of the cost reduction proposal. Items of discussion will also include permit issues, impact on other projects, impact on the project schedule, peer reviews, and review times required by the Department and other agencies.

5-1.02 LABOR NONDISCRIMINATION

Attention is directed to the following Notice that is required by Chapter 5 of Division 4 of Title 2, California Code of Regulations.

NOTICE OF REQUIREMENT FOR NONDISCRIMINATION PROGRAM

(GOV. CODE, SECTION 12990)

Your attention is called to the "Nondiscrimination Clause", set forth in Section 7-1.01A(4), "Labor Nondiscrimination," of the Standard Specifications, which is applicable to all nonexempt State contracts and subcontracts, and to the "Standard California Nondiscrimination Construction Contract Specifications" set forth therein. The specifications are applicable to all nonexempt State construction contracts and subcontracts of \$5000 or more.

5-1.03 INTEREST ON PAYMENTS

Interest shall be payable on progress payments, payments after acceptance, final payments, extra work payments, and claim payments as follows:

- A. Unpaid progress payments, payment after acceptance, and final payments shall begin to accrue interest 30 days after the Engineer prepares the payment estimate.
- B. Unpaid extra work bills shall begin to accrue interest 30 days after preparation of the first pay estimate following receipt of a properly submitted and undisputed extra work bill. To be properly submitted, the bill must be submitted within 7 days of the performance of the extra work and in conformance with the provisions in Section 9-1.03C, "Records," and Section 9-1.06, "Partial Payments," of the Standard Specifications. An undisputed extra work bill not submitted within 7 days of performance of the extra work will begin to accrue interest 30 days after the preparation of the second pay estimate following submittal of the bill.
- C. The rate of interest payable for unpaid progress payments, payments after acceptance, final payments, and extra work payments shall be 10 percent per annum.
- D. The rate of interest payable on a claim, protest or dispute ultimately allowed under this contract shall be 6 percent per annum. Interest shall begin to accrue 61 days after the Contractor submits to the Engineer information in sufficient detail to enable the Engineer to ascertain the basis and amount of said claim, protest or dispute.

The rate of interest payable on any award in arbitration shall be 6 percent per annum if allowed under the provisions of Civil Code Section 3289.

5-1.031 FINAL PAYMENT AND CLAIMS

Attention is directed to Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications.

The District that administers the contract shall submit a claim position letter to the Contractor within 135 days after acceptance of the contract. After receipt of the claim position letter from the District, or 135 days after acceptance of the contract, whichever occurs first, the Contractor may request a meeting with the person or board designated by the District Director to review claims that remain in dispute. If the Contractor requests a meeting, the review person or board shall meet with the Contractor within 45 days after the request is received.

5-1.04 PUBLIC SAFETY

The Contractor shall provide for the safety of traffic and the public in conformance with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications and these special provisions.

The Contractor shall install temporary railing (Type K) between a lane open to public traffic and an excavation, obstacle or storage area when the following conditions exist:

- A. Excavations.—The near edge of the excavation is 3.6 m or less from the edge of the lane, except:
 - 1. Excavations covered with sheet steel or concrete covers of adequate thickness to prevent accidental entry by traffic or the public.
 - 2. Excavations less than 0.3-m deep.
 - 3. Trenches less than 0.3-m wide for irrigation pipe or electrical conduit, or excavations less than 0.3-m in diameter.
 - 4. Excavations parallel to the lane for the purpose of pavement widening or reconstruction.
 - 5. Excavations in side slopes, where the slope is steeper than 1:4 (vertical:horizontal).
 - 6. Excavations protected by existing barrier or railing.
- B. Temporarily Unprotected Permanent Obstacles.—The work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and the Contractor elects to install the obstacle prior to installing the protective system; or the Contractor, for the Contractor's convenience and with permission of the Engineer, removes a portion of an existing protective railing at an obstacle and does not replace such railing complete in place during the same day.
- C. Storage Areas.—Material or equipment is stored within 3.6 m of the lane and the storage is not otherwise prohibited by the provisions of the Standard Specifications and these special provisions.

The approach end of temporary railing (Type K), installed in conformance with the provisions in this section "Public Safety" and in Section 7-1.09, "Public Safety," of the Standard Specifications, shall be offset a minimum of 4.6 m from the edge of the traffic lane open to public traffic. The temporary railing shall be installed on a skew toward the edge of the traffic lane of not more than 0.3-m transversely to 3 m longitudinally with respect to the edge of the traffic lane. If the 4.6-m minimum offset cannot be achieved, the temporary railing shall be installed on the 10 to 1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules shall be installed at the approach end of the temporary railing.

Temporary railing (Type K) shall conform to the provisions in Section 12-3.08, "Temporary Railing (Type K)," of the Standard Specifications. Temporary railing (Type K), conforming to the details shown on 1999 Standard Plan T3, may be used. Temporary railing (Type K) fabricated prior to January 1, 1993, and conforming to 1988 Standard Plan B11-30 may be used, provided the fabrication date is printed on the required Certificate of Compliance.

Temporary crash cushion modules shall conform to the provisions in "Temporary Crash Cushion Module" of these special provisions.

Except for installing, maintaining and removing traffic control devices, whenever work is performed or equipment is operated in the following work areas, the Contractor shall close the adjacent traffic lane unless otherwise provided in the Standard Specifications and these special provisions:

Approach Speed of Public Traffic (Posted Limit) (Kilometers Per Hour)	Work Areas
Over 72 (45 Miles Per Hour)	Within 1.8 m of a traffic lane but not on a traffic lane
56 to 72 (35 to 45 Miles Per Hour)	Within 0.9-m of a traffic lane but not on a traffic lane

The lane closure provisions of this section shall not apply if the work area is protected by permanent or temporary railing or barrier.

When traffic cones or delineators are used to delineate a temporary edge of a traffic lane, the line of cones or delineators shall be considered to be the edge of the traffic lane, however, the Contractor shall not reduce the width of an existing lane to less than 3 m without written approval from the Engineer.

When work is not in progress on a trench or other excavation that required closure of an adjacent lane, the traffic cones or portable delineators used for the lane closure shall be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators shall be not more than the spacing used for the lane closure.

Suspended loads or equipment shall not be moved nor positioned over public traffic or pedestrians.

Full compensation for conforming to the provisions in this section "Public Safety," including furnishing and installing temporary railing (Type K) and temporary crash cushion modules, shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

5-1.05 SURFACE MINING AND RECLAMATION ACT

Attention is directed to the Surface Mining and Reclamation Act of 1975, commencing in Public Resources Code, Mining and Geology, Section 2710, which establishes regulations pertinent to surface mining operations, and to California Public Contract Code Section 10295.5.

Material from mining operations furnished for this project shall only come from permitted sites in compliance with California Public Contract Code Section 10295.5.

The requirements of this section shall apply to materials furnished for the project, except for acquisition of materials in conformance with the provisions in Section 4-1.05, "Use of Materials Found on the Work," of the Standard Specifications.

5-1.06 REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES

When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos or a hazardous substance as defined in Section 25914.1 of the Health and Safety Code, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe. The Contractor shall immediately cease work in the affected area and report the condition to the Engineer in writing.

In conformance with Section 25914.1 of the Health and Safety Code, removal of asbestos or hazardous substances including exploratory work to identify and determine the extent of the asbestos or hazardous substance will be performed by separate contract.

If delay of work in the area delays the current controlling operation, the delay will be considered a right of way delay and the Contractor will be compensated for the delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

5-1.07 YEAR 2000 COMPLIANCE

This contract is subject to Year 2000 Compliance for automated devices in the State of California.

Year 2000 compliance for automated devices in the State of California is achieved when embedded functions have or create no logical or mathematical inconsistencies when dealing with dates prior to and beyond 1999. The year 2000 is recognized and processed as a leap year. The product shall operate accurately in the manner in which the product was intended for date operation without requiring manual intervention.

The Contractor shall provide the Engineer a Certificate of Compliance from the manufacturer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for all automated devices furnished for the project.

5-1.08 SUBCONTRACTOR AND DVBE RECORDS

The Contractor shall maintain records of all subcontracts entered into with certified DVBE subcontractors and records of materials purchased from certified DVBE suppliers. The records shall show the name and business address of each DVBE subcontractor or vendor and the total dollar amount actually paid each DVBE subcontractor or vendor.

Upon completion of the contract, a summary of these records shall be prepared on Form CEM-2402 (S) and certified correct by the Contractor or the Contractor's authorized representative, and shall be furnished to the Engineer.

5-1.086 PERFORMANCE OF DVBE SUBCONTRACTORS AND SUPPLIERS

The DVBEs listed by the Contractor in response to the provisions in Section 2-1.04, "Submission of DVBE Information," and Section 3, "Award and Execution of Contract," of these special provisions, which are determined by the Department to be certified DVBEs, shall perform the work and supply the materials for which they are listed, unless the Contractor has received prior written authorization to perform the work with other forces or to obtain the materials from other sources.

Authorization to utilize other forces or sources of materials may be requested for the following reasons:

- A. The listed DVBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract, when the written contract, based upon the general terms, conditions, plans and specifications for the project, or on the terms of the subcontractor's or supplier's written bid, is presented by the Contractor.
- B. The listed DVBE becomes bankrupt or insolvent.
- C. The listed DVBE fails or refuses to perform the subcontract or furnish the listed materials.

- D. The Contractor stipulated that a bond was a condition of executing a subcontract and the listed DVBE subcontractor fails or refuses to meet the bond requirements of the Contractor.
- E. The work performed by the listed subcontractor is substantially unsatisfactory and is not in substantial conformance with the plans and specifications or the subcontractor is substantially delaying or disrupting the progress of the work.
- F. The listed DVBE subcontractor is not licensed pursuant to the Contractor's License Law.
- G. It would be in the best interest of the State.

The Contractor shall not be entitled to payment for the work or material unless it is performed or supplied by the listed DVBE or by other forces (including those of the Contractor) pursuant to prior written authorization of the Engineer.

5-1.09 SUBCONTRACTING

Attention is directed to the provisions in Section 8-1.01, "Subcontracting," of the Standard Specifications, Section 2, "Proposal Requirements and Conditions," Section 2-1.04, "Submission of DVBE Information," and Section 3, "Award and Execution of Contract," of these special provisions and these special provisions.

Pursuant to the provisions in Section 1777.1 of the Labor Code, the Labor Commissioner publishes and distributes a list of contractors ineligible to perform work as a subcontractor on a public works project. This list of debarred contractors is available from the Department of Industrial Relations web site at:

<http://www.dir.ca.gov/DLSE/Debar.html>.

The DVBE information furnished under Section 3-1.01A, "DVBE Information," of these special provisions is in addition to the subcontractor information required to be furnished in Section 8-1.01, "Subcontracting," and Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications.

Section 10115 of the Public Contract Code requires the Department to implement provisions to establish a goal for Disabled Veteran Business Enterprise (DVBE) participation in highway contracts that are State funded. As a part of this requirement:

- A. No substitution of a DVBE subcontractor shall be made at any time without the written consent of the Department, and
- B. If a DVBE subcontractor is unable to perform successfully and is to be replaced, the Contractor shall make good faith efforts to replace the original DVBE subcontractor with another DVBE subcontractor.

The provisions in Section 2-1.02, "Disabled Veteran Business Enterprise (DVBE)," of these special provisions that DVBEs shall be certified on the date bids are opened does not apply to DVBE substitutions after award of the contract.

5-1.10 PROMPT PROGRESS PAYMENT TO SUBCONTRACTORS

Attention is directed to the provisions in Sections 10262 and 10262.5 of the Public Contract Code and Section 7108.5 of the Business and Professions Code concerning prompt payment to subcontractors.

5-1.11 PARTNERING

The State will promote the formation of a "Partnering" relationship with the Contractor in order to effectively complete the contract to the benefit of both parties. The purpose of this relationship is to maintain a cooperative communication and to mutually resolve conflicts at the lowest responsible management level.

The Contractor may request the formation of a "Partnering" relationship by submitting a request in writing to the Engineer after approval of the contract. If the Contractor's request for "Partnering" is approved by the Engineer, scheduling of a "Partnering Workshop," selecting the "Partnering" facilitator and workshop site, and other administrative details shall be as agreed to by both parties. If agreed to by the parties, additional "Partnering Workshops" will be conducted as needed throughout the life of the contract.

The costs involved in providing the "Partnering Workshop" facilitator and workshop site will be borne equally by the State and the Contractor. The division of cost will be made by determining the cost in providing the "Partnering Workshop" facilitator and workshop site in conformance with the provisions in Section 9-1.03B, "Work Performed by Special Forces or Other Special Services," of the Standard Specifications, and paying to the Contractor one-half of that cost, except no markups will be allowed.

All other costs associated with "Partnering Workshops" will be borne separately by the party incurring the costs, such as wages and travel expenses, and no additional compensation will be allowed therefor.

The establishment of a "Partnering" relationship will not change or modify the terms and conditions of the contract and will not relieve either party of the legal requirements of the contract.

5-1.12 AREAS FOR CONTRACTOR'S USE

Attention is directed to the provisions in Section 7-1.19, "Rights in Land and Improvements," of the Standard Specifications and these special provisions.

The highway right of way shall be used only for purposes that are necessary to perform the required work. The Contractor shall not occupy the right of way, or allow others to occupy the right of way, for purposes which are not necessary to perform the required work.

No State-owned parcels adjacent to the right of way are available for the exclusive use of the Contractor within the contract limits. The Contractor shall secure, at the Contractor's own expense, areas required for plant sites, storage of equipment or materials, or for other purposes. No area is available within the contract limits for the exclusive use of the Contractor. However, temporary storage of equipment and materials on State property may be arranged with the Engineer, subject to the prior demands of State maintenance forces and to other contract requirements. Use of the Contractor's work areas and other State-owned property shall be at the Contractor's own risk, and the State shall not be held liable for damage to or loss of materials or equipment located within such areas.

5-1.13 PAYMENTS

Attention is directed to Sections 9-1.06, "Partial Payments," and 9-1.07, "Payment After Acceptance," of the Standard Specifications and these special provisions.

No partial payment will be made for any materials on hand which are furnished but not incorporated in the work.

SECTION 6. (BLANK)

SECTION 7. (BLANK)

SECTION 8. MATERIALS

SECTION 8-1. MISCELLANEOUS

8-1.01 SUBSTITUTION OF NON-METRIC MATERIALS AND PRODUCTS

Only materials and products conforming to the requirements of the specifications shall be incorporated in the work. When metric materials and products are not available, and when approved by the Engineer, and at no cost to the State, materials and products in the United States Standard Measures which are of equal quality and of the required properties and characteristics for the purpose intended, may be substituted for the equivalent metric materials and products, subject to the following provisions:

- A. Materials and products shown on the plans or in the special provisions as being equivalent may be substituted for the metric materials and products specified or detailed on the plans.
- B. Before other non-metric materials and products will be considered for use, the Contractor shall furnish, at the Contractor's expense, evidence satisfactory to the Engineer that the materials and products proposed for use are equal to or better than the materials and products specified or detailed on the plans. The burden of proof as to the quality and suitability of substitutions shall be upon the Contractor and the Contractor shall furnish necessary information as required by the Engineer. The Engineer will be the sole judge as to the quality and suitability of the substituted materials and products and the Engineer's decision will be final.
- C. When the Contractor elects to substitute non-metric materials and products, including materials and products shown on the plans or in the special provisions as being equivalent, the list of sources of material specified in Section 6-1.01, "Source of Supply and Quality of Materials," of the Standard Specification shall include a list of substitutions to be made and contract items involved. In addition, for a change in design or details, the Contractor shall submit plans and working drawings in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. The plans and working drawings shall be submitted at least 7 days before the Contractor intends to begin the work involved.

Unless otherwise specified, the following substitutions of materials and products will be allowed:

SUBSTITUTION TABLE FOR SIZES OF HIGH STRENGTH STEEL FASTENERS

ASTM Designation: A 325M

METRIC SIZE SHOWN ON THE PLANS mm x thread pitch	SIZE TO BE SUBSTITUTED inch
M16 x 2	5/8
M20 x 2.5	3/4
M22 x 2.5	7/8
M24 x 3	1
M27 x 3	1-1/8
M30 x 3.5	1-1/4
M36 x 4	1-1/2

SUBSTITUTION TABLE FOR PLAIN WIRE REINFORCEMENT

ASTM Designation: A 82

METRIC SIZE SHOWN ON THE PLANS mm ²	SIZE TO BE SUBSTITUTED inch ² x 100
MW9	W1.4
MW10	W1.6
MW13	W2.0
MW15	W2.3
MW19	W2.9
MW20	W3.1
MW22	W3.5
MW25	W3.9, except W3.5 in piles only
MW26	W4.0
MW30	W4.7
MW32	W5.0
MW35	W5.4
MW40	W6.2
MW45	W6.5
MW50	W7.8
MW55	W8.5, except W8.0 in piles only
MW60	W9.3
MW70	W10.9, except W11.0 in piles only
MW80	W12.4
MW90	W14.0
MW100	W15.5

SUBSTITUTION TABLE FOR BAR REINFORCEMENT

METRIC BAR DESIGNATION NUMBER¹ SHOWN ON THE PLANS	BAR DESIGNATION NUMBER² TO BE SUBSTITUTED
13	4
16	5
19	6
22	7
25	8
29	9
32	10
36	11
43	14
57	18

¹Bar designation numbers approximate the number of millimeters of the nominal diameter of the bars.

²Bar numbers are based on the number of eighths of an inch included in the nominal diameter of the bars.

No adjustment will be required in spacing or total number of reinforcing bars due to a difference in minimum yield strength between metric and non-metric bars.

SUBSTITUTION TABLE FOR SIZES OF:

(1) STEEL FASTENERS FOR GENERAL APPLICATIONS (ASTM Designation: A 307 or AASHTO Designation: M 314, Grade 36 or 55), and

(2) HIGH STRENGTH STEEL FASTENERS (ASTM Designation: A 325 or A 449)

METRIC SIZE SHOWN ON THE PLANS mm	SIZE TO BE SUBSTITUTED inch
6 or 6.35	1/4
8 or 7.94	5/16
10 or 9.52	3/8
11 or 11.11	7/16
13 or 12.70	1/2
14 or 14.29	9/16
16 or 15.88	5/8
19 or 19.05	3/4
22 or 22.22	7/8
24, 25, or 25.40	1
29 or 28.58	1-1/8
32 or 31.75	1-1/4
35 or 34.93	1-3/8
38 or 38.10	1-1/2
44 or 44.45	1-3/4
51 or 50.80	2
57 or 57.15	2-1/4
64 or 63.50	2-1/2
70 or 69.85	2-3/4
76 or 76.20	3
83 or 82.55	3-1/4
89 or 88.90	3-1/2
95 or 95.25	3-3/4
102 or 101.60	4

SUBSTITUTION TABLE FOR NOMINAL THICKNESS OF SHEET METAL

UNCOATED HOT AND COLD ROLLED SHEETS		HOT-DIPPED ZINC COATED SHEETS (GALVANIZED)	
METRIC THICKNESS SHOWN ON THE PLANS mm	GAGE TO BE SUBSTITUTED inch	METRIC THICKNESS SHOWN ON THE PLANS mm	GAGE TO BE SUBSTITUTED inch
7.94	0.3125	4.270	0.1681
6.07	0.2391	3.891	0.1532
5.69	0.2242	3.510	0.1382
5.31	0.2092	3.132	0.1233
4.94	0.1943	2.753	0.1084
4.55	0.1793	2.372	0.0934
4.18	0.1644	1.994	0.0785
3.80	0.1495	1.803	0.0710
3.42	0.1345	1.613	0.0635
3.04	0.1196	1.461	0.0575
2.66	0.1046	1.311	0.0516
2.28	0.0897	1.158	0.0456
1.90	0.0747	1.006 or 1.016	0.0396
1.71	0.0673	0.930	0.0366
1.52	0.0598	0.853	0.0336
1.37	0.0538	0.777	0.0306
1.21	0.0478	0.701	0.0276
1.06	0.0418	0.627	0.0247
0.91	0.0359	0.551	0.0217
0.84	0.0329	0.513	0.0202
0.76	0.0299	0.475	0.0187
0.68	0.0269	-----	-----
0.61	0.0239	-----	-----
0.53	0.0209	-----	-----
0.45	0.0179	-----	-----
0.42	0.0164	-----	-----
0.38	0.0149	-----	-----

SUBSTITUTION TABLE FOR WIRE

METRIC THICKNESS SHOWN ON THE PLANS mm	WIRE THICKNESS TO BE SUBSTITUTED inch	GAGE NO.
6.20	0.244	3
5.72	0.225	4
5.26	0.207	5
4.88	0.192	6
4.50	0.177	7
4.11	0.162	8
3.76	0.148	9
3.43	0.135	10
3.05	0.120	11
2.69	0.106	12
2.34	0.092	13
2.03	0.080	14
1.83	0.072	15
1.57	0.062	16
1.37	0.054	17
1.22	0.048	18
1.04	0.041	19
0.89	0.035	20

SUBSTITUTION TABLE FOR PIPE PILES

METRIC SIZE SHOWN ON THE PLANS mm x mm	SIZE TO BE SUBSTITUTED inch x inch
PP 360 x 4.55	NPS 14 x 0.179
PP 360 x 6.35	NPS 14 x 0.250
PP 360 x 9.53	NPS 14 x 0.375
PP 360 x 11.12	NPS 14 x 0.438
PP 406 x 12.70	NPS 16 x 0.500
PP 460 x T	NPS 18 x T"
PP 508 x T	NPS 20 x T"
PP 559 x T	NPS 22 x T"
PP 610 x T	NPS 24 x T"
PP 660 x T	NPS 26 x T"
PP 711 x T	NPS 28 x T"
PP 762 x T	NPS 30 x T"
PP 813 x T	NPS 32 x T"
PP 864 x T	NPS 34 x T"
PP 914 x T	NPS 36 x T"
PP 965 x T	NPS 38 x T"
PP 1016 x T	NPS 40 x T"
PP 1067 x T	NPS 42 x T"
PP 1118 x T	NPS 44 x T"
PP 1219 x T	NPS 48 x T"
PP 1524 x T	NPS 60 x T"

The thickness in millimeters (T) represents an exact conversion of the thickness in inches (T").

SUBSTITUTION TABLE FOR STRUCTURAL TIMBER AND LUMBER

METRIC MINIMUM DRESSED DRY, SHOWN ON THE PLANS mm x mm	METRIC MINIMUM DRESSED GREEN, SHOWN ON THE PLANS mm x mm	NOMINAL SIZE TO BE SUBSTITUTED inch x inch
19x89	20x90	1x4
38x89	40x90	2x4
64x89	65x90	3x4
89x89	90x90	4x4
140x140	143x143	6x6
140x184	143x190	6x8
184x184	190x190	8x8
235x235	241x241	10x10
286x286	292x292	12x12

SUBSTITUTION TABLE FOR NAILS AND SPIKES

METRIC COMMON NAIL, SHOWN ON THE PLANS Length, mm Diameter, mm	METRIC BOX NAIL, SHOWN ON THE PLANS Length, mm Diameter, mm	METRIC SPIKE, SHOWN ON THE PLANS Length, mm Diameter, mm	SIZE TO BE SUBSTITUTED Penny-weight
50.80 2.87	50.80 2.51	————	6d
63.50 3.33	63.50 2.87	————	8d
76.20 3.76	76.20 3.25	76.20 4.88	10d
82.55 3.76	82.55 3.25	82.55 4.88	12d
88.90 4.11	88.90 3.43	88.90 5.26	16d
101.60 4.88	101.60 3.76	101.60 5.72	20d
114.30 5.26	114.30 3.76	114.30 6.20	30d
127.00 5.72	127.00 4.11	127.00 6.68	40d
————	————	139.70 7.19	50d
————	————	152.40 7.19	60d

**SUBSTITUTION TABLE FOR IRRIGATION
COMPONENTS**

METRIC WATER METERS, TRUCK LOADING STANDPIPES, VALVES, BACKFLOW PREVENTERS, FLOW SENSORS, WYE STRAINERS, FILTER ASSEMBLY UNITS, PIPE SUPPLY LINES, AND PIPE IRRIGATION SUPPLY LINES SHOWN ON THE PLANS DIAMETER NOMINAL (DN) mm	NOMINAL SIZE TO BE SUBSTITUTED inch
15	1/2
20	3/4
25	1
32	1-1/4
40	1-1/2
50	2
65	2-1/2
75	3
100	4
150	6
200	8
250	10
300	12
350	14
400	16

Unless otherwise specified, substitutions of United States Standard Measures standard structural shapes corresponding to the metric designations shown on the plans and in conformance with the requirements in ASTM Designation: A 6/A 6M, Annex 2, will be allowed.

8-1.02 PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS

The Department maintains the following list of Prequalified and Tested Signing and Delineation Materials. The Engineer shall not be precluded from sampling and testing products on the list of Prequalified and Tested Signing and Delineation Materials.

The manufacturer of products on the list of Prequalified and Tested Signing and Delineation Materials shall furnish the Engineer a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each type of traffic product supplied.

For those categories of materials included in the list of Prequalified and Tested Signing and Delineation Materials, only those products shown within the listing may be used in the work. Other categories of products, not included in the list of Prequalified and Tested Signing and Delineation Materials, may be used in the work provided they conform to the requirements of the Standard Specifications.

Materials and products may be added to the list of Prequalified and Tested Signing and Delineation Materials if the manufacturer submits a New Product Information Form to the New Product Coordinator at the Transportation Laboratory. Upon a Departmental request for samples, sufficient samples shall be submitted to permit performance of required tests. Approval of materials or products will depend upon compliance with the specifications and tests the Department may elect to perform.

PAVEMENT MARKERS, PERMANENT TYPE

Retroreflective

- A. Apex, Model 921 (100 mm x 100 mm)
- B. Ray-O-Lite, Models SS (100 mm x 100 mm), RS (100 mm x 100 mm) and AA (100 mm x 100 mm)
- C. Stimsonite, Models 88 (100 mm x 100 mm), 911 (100 mm x 100 mm), 953 (70 mm x 114 mm)
- D. 3M Series 290 (89 mm x 100 mm)

Retroreflective With Abrasion Resistant Surface (ARS)

- A. Apex, Model 921AR (100 mm x 100 mm)
- B. Ray-O-Lite "AA" ARS (100 mm x 100 mm)
- C. Stimsonite, Models 911 (100 mm x 100 mm), 953 (70 mm x 114 mm)
- D. 3M Series 290 (89 mm x 100 mm)

Retroreflective With Abrasion Resistant Surface (ARS)

(Used for recessed applications)

- A. Stimsonite, Model 948 (58 mm x 119 mm)
- B. Ray-O-Lite, Model 2002 (58 mm x 117 mm)
- C. Stimsonite, Model 944SB (51 mm x 100 mm)*
- D. Ray-O-Lite, Model 2004 ARS (51 mm x 100 mm)*

*For use only in 114 mm wide (older) recessed slots

Non-Reflective For Use With Epoxy Adhesive, 100 mm Round

- A. Apex Universal (Ceramic)
- B. Highway Ceramics, Inc. (Ceramic)

Non-Reflective For Use With Bitumen Adhesive, 100 mm Round

- A. Alpine Products, "D-Dot" and "ANR" (ABS)
- B. Apex Universal (Ceramic)
- C. Apex Universal, Model 929 (ABS)
- D. Elgin Molded Plastics, "Empco-Lite" Model 900 (ABS)
- E. Highway Ceramics, Inc. (Ceramic)
- F. Hi-Way Safety, Inc., Models P20-2000W and 2001Y (ABS)
- G. Interstate Sales, "Diamond Back" (ABS) and (Polypropylene)
- H. Novabrite Models Adot-w (White) Adot-y (Yellow), (ABS)
- I. Road Creations, Model RCB4NR (Acrylic)
- J. Zumar Industries, "Titan TM40A" (ABS)

PAVEMENT MARKERS, TEMPORARY TYPE

Temporary Markers For Long Term Day/Night Use (6 months or less)

- A. Apex Universal, Model 924 (100 mm x 100 mm)
- B. Elgin Molded Plastics, "Empco-Lite" Model 901 (100 mm x 100 mm)
- C. Road Creations, Model R41C (100 mm x 100 mm)
- D. Vega Molded Products "Temporary Road Marker" (75 mm x 100 mm)

Temporary Markers For Short Term Day/Night Use (14 days or less)

(For seal coat or chip seal applications, clear protective covers are required)

- A. Apex Universal, Model 932
- B. Davidson Plastics, Models T.O.M., T.R.P.M., and "HH" (High Heat)
- C. Hi-Way Safety, Inc., Model 1280/1281

STRIPING AND PAVEMENT MARKING MATERIAL

Permanent Traffic Striping and Pavement Marking Tape

- A. Advanced Traffic Marking, Series 300 and 400
- B. Brite-Line, Series 1000
- C. Brite-Line "DeltaLine XRP"
- D. Swarco Industries, "Director 35" (For transverse application only)

- E. Swarco Industries, "Director 60"
- F. 3M, "Stamark" Series 380 and 5730
- G. 3M, "Stamark" Series 420 (For transverse application only)

Temporary (Removable) Striping and Pavement Marking Tape (6 months or less)

- A. Advanced Traffic Marking, Series 200
- B. Brite-Line, Series 100
- C. P.B. Laminations, Aztec, Grade 102
- D. Swarco Industries, "Director-2"
- E. 3M, "Stamark," Series 620
- F. 3M Series A145 Removable Black Line Mask
(Black Tape: For use only on Asphalt Concrete Surfaces)
- G. Advanced Traffic Marking Black "Hide-A-Line"
(Black Tape: For use only on Asphalt Concrete Surfaces)
- H. Brite-Line "BTR" Black Removable Tape
(Black Tape: For use only on Asphalt Concrete Surfaces)

Preformed Thermoplastic (Heated in place)

- A. Flint Trading, "Premark" and "Premark 20/20 Flex"
- B. Pavemark, "Hotape"

Removable Traffic Paint

- A. Belpro, Series 250/252 and No. 93 Remover

Ceramic Surfacing Laminate, 150 mm x 150 mm

- A. Safeline Industries/Highway Ceramics, Inc.

CLASS 1 DELINEATORS

One Piece Driveable Flexible Type, 1700 mm

- A. Carsonite, Curve-Flex CFRM-400
- B. Carsonite, Roadmarker CRM-375
- C. Davidson Plastics, "Flexi-Guide Models 400 and 566"
- D. FlexStake, Model 654 TM
- E. GreenLine Models HWD1-66 and CGD1-66
- F. J. Miller Industries, Model JMI-375 (with soil anchor)

Special Use Flexible Type, 1700 mm

- A. Carsonite, "Survivor" (with 450 mm U-Channel base)
- B. FlexStake, Model 604
- C. GreenLine Models HWD and CGD (with 450 mm U-Channel base)
- D. Safe-Hit with 200 mm pavement anchor (SH248-GP1)
- E. Safe-Hit with 380 mm soil anchor (SH248-GP2) and with 450 mm soil anchor (SH248-GP3)

Surface Mount Flexible Type, 1200 mm

- A. Bent Manufacturing Company, Masterflex Model MF-180EX-48
- B. Carsonite, "Super Duck II"
- C. FlexStake, Surface Mount, Models 704 and 754 TM

CHANNELIZERS

Surface Mount Type, 900 mm

- A. Bent Manufacturing Company, Masterflex Models MF-360-36 (Round) and MF-180-36 (Flat)
- B. Carsonite, "Super Duck" (Flat SDF-436, Round SDR-336)
- C. Carsonite, "Super Duck II" Model SDCF203601MB "The Channelizer"
- D. Davidson Plastics, Flex-Guide Models FG300LD and FG300UR
- E. FlexStake, Surface Mount, Models 703 and 753 TM
- F. GreenLine, Model SMD-36

- G. Hi-Way Safety, Inc. "Channel Guide Channelizer" Model CGC36
- H. The Line Connection, "Dura-Post" Model DP36-3 (Permanent)
- I. The Line Connection, "Dura-Post" Model DP36-3C (Temporary)
- J. Repo, Models 300 and 400
- K. Safe-Hit, Guide Post, Model SH236SMA

CONICAL DELINEATORS, 1070 mm

(For 700 mm Traffic Cones, see Standard Specifications)

- A. Bent Manufacturing Company "T-Top"
- B. Plastic Safety Systems "Navigator-42"
- C. Roadmaker Company "Stacker"
- D. Traffix Devices "Grabber"

OBJECT MARKERS

Type "K", 450 mm

- A. Carsonite, Model SMD-615
- B. FlexStake, Model 701 KM
- C. Repo, Models 300 and 400
- D. Safe-Hit, Model SH718SMA
- E. The Line Connection, Model DP21-4K

Type "K-4" / "Q" Object Markers, 600 mm

- A. Bent Manufacturing "Masterflex" Model MF-360-24
- B. Carsonite, Super Duck II
- C. FlexStake, Model 701KM
- D. Repo, Models 300 and 400
- E. Safe-Hit, Models SH8 24SMA_WA and SH8 24GP3_WA
- F. The Line Connection, Model DP21-4Q

TEMPORARY RAILING (TYPE K) REFLECTORS AND CONCRETE BARRIER MARKERS

Impactable Type

- A. ARTUK, "FB"
- B. Davidson Plastics, Model PCBM-12
- C. Duraflex Corp., "Flexx 2020" and "Electriflexx"
- D. Hi-Way Safety, Inc., Model GMKRM100

Non-Impactable Type

- A. ARTUK, JD Series
- B. Stimsonite, Model 967 (with 83 mm Acrylic cube corner reflector)
- C. Stimsonite, Model 967LS
- D. Vega Molded Products, Models GBM and JD

THREE BEAM BARRIER MARKERS

(For use to the left of traffic)

- A. Duraflex Corp., "Railrider"
- B. Davidson Plastics, "Mini" (75 mm x 254 mm)

CONCRETE BARRIER DELINEATORS, 400 mm

(For use to the right of traffic. When mounted on top of barrier, places top of reflective element at 1200 mm)

- A. Davidson Plastics, Model PCBM T-16
- B. Safe-Hit, Model SH216RBM
- C. Sun-Lab Technology, "Safety Guide Light, Model TM," 130 mm x 130 mm x 80 mm

CONCRETE BARRIER-MOUNTED MINI-DRUM (260 mm x 360 mm x 570 mm)

- A. Stinson Equipment Company "SaddleMarker"

SOUND WALL DELINEATOR

(Applied vertically. Place top of 75 mm x 300 mm reflective element at 1200 mm above roadway)

- A. Davidson Plastics, PCBM S-36
- B. Sun-Lab Technology, "Safety Guide Light, Model SM12," 130 mm x 130 mm x 80 mm

GUARD RAILING DELINEATOR

(Top of reflective element at 1200 mm above plane of roadway)

Wood Post Type, 686 mm

- A. Carsonite, Model 427
- B. Davidson Plastics FG 427 and FG 527
- C. FlexStake, Model 102 GR
- D. GreenLine GRD 27
- E. J. Miller Model JMI-375G
- F. Safe-Hit, Model SH227GRD

Steel Post Type

- A. Carsonite, Model CFGR-327 with CFGRBK300 Mounting Bracket

RETROREFLECTIVE SHEETING

Channelizers, Barrier Markers, and Delineators

- A. 3M, High Intensity
- B. Reflexite, PC-1000 Metalized Polycarbonate
- C. Reflexite, AC-1000 Acrylic
- D. Reflexite, AP-1000 Metalized Polyester
- E. Reflexite, AR-1000 Abrasion Resistant Coating
- F. Avery Dennison T-6500 Series (Formerly Stimsonite, Series 6200) (For rigid substrate devices only)

Traffic Cones, 330 mm Sleeves

- A. Reflexite SB (Polyester), Vinyl or "TR" (Semi-transparent)

Traffic Cones, 100 mm and 150 mm Sleeves

- A. 3M Series 3840
- B. Reflexite Vinyl, "TR" (Semi-transparent) or "Conformalite"

Barrels and Drums

- A. Reflexite, "Super High Intensity" or "High Impact Drum Sheeting"
- B. 3M Series 3810

Barricades: Type I, Engineer Grade

- A. American Decal, Adcolite
- B. Avery Dennison, T-1500 and T-1600
- C. 3M, Scotchlite, Series CW

Barricades: Type II, Super Engineer Grade

- A. Avery Dennison, T-2500 Series
- B. Kiwalite Type II
- C. Nikkalite 1800 Series

Signs: Type II, Super Engineer Grade

- A. Avery Dennison, T-2500 Series
- B. Kiwalite, Type II
- C. Nikkalite 1800 Series

Signs: Type III, High-Intensity Grade

- A. 3M Series 3800
- B. Nippon Carbide, Nikkalite Brand Ultralite Grade II

Signs: Type IV, High-Intensity Prismatic Grade

- A. Avery Dennison T-6500 (Formerly Stimsonite Series 6200)

Signs: Type VII, High-Intensity Prismatic Grade

- A. 3M Series 3900

Signs: Type VI, Roll-Up Signs

- A. Reflexite, Vinyl (Orange)
- B. Reflexite "SuperBright" (Fluorescent orange)
- C. Reflexite "Marathon" (Fluorescent orange)
- D. 3M Series RS34 (Orange) and RS20 (Fluorescent orange)

SPECIALTY SIGN (All Plastic)

- A. All Sign Products, STOP Sign, 750 mm

SIGN SUBSTRATE FOR CONSTRUCTION AREA SIGNS

Aluminum

Fiberglass Reinforced Plastic (FRP)

- A. Sequentia, "Polyplate"
- B. Fiber-Brite

SECTION 8-2. (BLANK)

SECTION 8-3. (BLANK)

SECTION 9. (BLANK)

SECTION 10. CONSTRUCTION DETAILS

SECTION 10-1. GENERAL

10-1.01 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

At those locations where ready mix concrete trucks will be used a concrete washout area will be selected and approved by the Engineer prior to start of construction.

Work included under replace concrete pavement which are required to be completed within the allotted lane closure time include but are not limited to setting up all traffic control, existing slab demolition and removal, base preparation or when directed by the Engineer base removal, fast setting hydraulic cement concrete finishing, concrete curing to specified strength, installation of temporary pavement delineation, and traffic control removal.

10-1.02 WATER POLLUTION CONTROL

Water pollution control work shall conform to the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications and these special provisions.

Water pollution control work shall conform to the requirements in the "Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual" and the "Construction Site Best Management Practices (BMPs) Manual," and addenda thereto issued up to, and including, the date of advertisement of the project, hereafter referred to respectively as the "Preparation Manual" and the "Construction Site BMP Manual" and collectively as the "Manuals." Copies of the Manuals may be obtained from the Department of Transportation, Material Operations Branch, Publication Distribution Unit, 1900 Royal Oaks Drive, Sacramento, California 95815, Telephone: (916) 445-3520. Copies of the Manuals may also be obtained from the Department of Transportation's website at: <http://www.dot.ca.gov/hq/construc/stormwater>.

Copies of the Manuals are also available for review at the Northern Region Construction Office at 961 Live Oak Boulevard, Yuba City, California 95991.

The Contractor shall know and fully comply with the applicable provisions of the Manuals and Federal, State, and local regulations that govern the Contractor's operations and storm water discharges from both the project site and areas of disturbance outside the project limits during construction.

Unless arrangements for disturbance of areas outside the project limits are made by the Department and made part of the contract, it is expressly agreed that the Department assumes no responsibility whatsoever to the Contractor or property owner with respect to any arrangements made between the Contractor and property owner to allow disturbance of areas outside the project limits.

The Contractor shall be responsible for the costs and for liabilities imposed by law as a result of the Contractor's failure to comply with the requirements set forth in this section "Water Pollution Control" including, but not limited to, compliance with the applicable provisions of the Manuals and Federal, State, and local regulations. For the purposes of this paragraph, costs and liabilities include, but are not limited to, fines, penalties, and damages whether assessed against the State or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act.

In addition to the remedies authorized by law, an amount of the money due the Contractor under the contract, as determined by the Department, may be retained by the State of California until disposition has been made of the costs and liabilities.

The retention of money due the Contractor shall be subject to the following:

- A. The Department will give the Contractor 30 days notice of the Department's intention to retain funds from partial payments which may become due to the Contractor prior to acceptance of the contract. Retention of funds from payments made after acceptance of the contract may be made without prior notice to the Contractor.
- B. No retention of additional amounts out of partial payments will be made if the amount to be retained does not exceed the amount being withheld from partial payments pursuant to Section 9-1.06, "Partial Payments," of the Standard Specifications.
- C. If the Department has retained funds and it is subsequently determined that the State is not subject to the costs and liabilities in connection with the matter for which the retention was made, the Department shall be liable for interest on the amount retained at the legal rate of interest for the period of the retention.

Conformance with the provisions in this section "Water Pollution Control" shall not relieve the Contractor from the Contractor's responsibilities as provided in Section 7, "Legal Relations and Responsibilities," of the Standard Specifications.

WATER POLLUTION CONTROL PROGRAM PREPARATION, APPROVAL AND UPDATES

As part of the water pollution control work, a Water Pollution Control Program, hereafter referred to as the "WPCP," is required for this contract. The WPCP shall conform to the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications, the requirements in the Manuals, and these special provisions.

No work having potential to cause water pollution, as determined by the Engineer, shall be performed until the WPCP has been approved by the Engineer.

Within 7 days after the approval of the contract, the Contractor shall submit 3 copies of the WPCP to the Engineer. The Engineer will have 3 days to review the WPCP. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the WPCP within 3 days of receipt of the Engineer's comments. The Engineer will have 3 days to review the revisions. Upon the Engineer's approval of the WPCP, 3 additional copies of the WPCP incorporating the required changes shall be submitted to the Engineer. Minor changes or clarifications to the initial submittal may be made and attached as amendments to the WPCP. In order to allow construction activities to proceed, the Engineer may conditionally approve the WPCP while minor revisions or amendments are being completed.

The WPCP shall identify pollution sources that may adversely affect the quality of storm water discharges associated with the project and shall identify water pollution control measures, hereafter referred to as control measures, to be constructed, implemented, and maintained in order to reduce to the extent feasible pollutants in storm water discharges from the construction site during construction under this contract.

The WPCP shall incorporate control measures in the following categories:

- A. Soil stabilization practices;
- B. Sediment control practices;
- C. Sediment tracking control practices;
- D. Wind erosion control practices; and
- E. Nonstorm water management and waste management and disposal control practices.

Specific objectives and minimum requirements for each category of control measures are contained in the Manuals.

The Contractor shall consider the objectives and minimum requirements presented in the Manuals for each of the above categories. When minimum requirements are listed for any category, the Contractor shall incorporate into the WPCP and implement on the project, one or more of the listed minimum controls required in order to meet the pollution control objectives for the category. In addition, the Contractor shall consider other control measures presented in the Manuals and

shall incorporate into the WPCP and implement on the project the control measures necessary to meet the objectives of the WPCP. The Contractor shall document the selection process in conformance with the procedure specified in the Manuals.

The WPCP shall include, but not be limited to, the following items as described in the Manuals:

- A. Project description and Contractor's certification;
- B. Project information;
- C. Pollution sources, control measures, and water pollution control drawings; and
- D. Amendments, if any.

The Contractor shall amend the WPCP, graphically and in narrative form, whenever there is a change in construction activities or operations which may affect the discharge of significant quantities of pollutants to surface waters, ground waters, municipal storm drain systems or when deemed necessary by the Engineer. The WPCP shall be amended if the WPCP has not achieved the objective of reducing pollutants in storm water discharges. Amendments shall show additional control measures or revised operations, including those in areas not shown in the initially approved WPCP, which are required on the project to control water pollution effectively. Amendments to the WPCP shall be submitted for review and approval by the Engineer in the same manner specified for the initially approved WPCP. Amendments shall be dated and attached to the on-site WPCP document.

The Contractor shall keep a copy of the WPCP, together with updates, revisions and amendments at the project site.

WPCP IMPLEMENTATION

Upon approval of the WPCP, the Contractor shall be responsible throughout the duration of the project for installing, constructing, inspecting, and maintaining the control measures included in the WPCP and any amendments thereto and for removing and disposing of temporary control measures. Unless otherwise directed by the Engineer or specified in these special provisions, the Contractor's responsibility for WPCP implementation shall continue throughout any temporary suspension of work ordered in conformance with the provisions in Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications. Requirements for installation, construction, inspection, maintenance, removal, and disposal of control measures are specified in the Manuals and these special provisions.

Soil stabilization practices and sediment control measures, including minimum requirements, shall be provided throughout the winter season, defined as between October 15 and April 15

Implementation of soil stabilization practices and sediment control measures for soil disturbed areas on the project site shall be completed, except as provided for below, not later than 20 days prior to the beginning of the winter season or upon start of applicable construction activities for projects which begin either during or within 20 days of the winter season.

Throughout the winter season, the active, soil-disturbed area of the project site shall be not more than 1.9 hectares. The Engineer may approve, on a case-by-case basis, expansions of the active, soil-disturbed area limit. The Contractor shall demonstrate the ability and preparedness to fully deploy soil stabilization practices and sediment control measures to protect soil disturbed areas on the project site before the onset of precipitation. A quantity of soil stabilization and sediment control materials shall be maintained on site equal to 100 percent of that sufficient to protect unprotected, soil-disturbed areas on the project site. A detailed plan for the mobilization of sufficient labor and equipment shall be maintained to fully deploy control measures required to protect unprotected, soil-disturbed areas on the project site prior to the onset of precipitation. A current inventory of control measure materials and the detailed mobilization plan shall be included as part of the WPCP.

Throughout the winter season, soil-disturbed areas on the project site shall be considered to be nonactive whenever soil disturbing activities are expected to be discontinued for a period of 20 or more days and the areas are fully protected. Areas that will become nonactive either during the winter season or within 20 days thereof shall be fully protected with soil stabilization practices and sediment control measures within 10 days of the discontinuance of soil disturbing activities or prior to the onset of precipitation, whichever is first to occur.

Throughout the winter season, active soil-disturbed areas of the project site shall be fully protected at the end of each day with soil stabilization practices and sediment control measures unless fair weather is predicted through the following work day. The weather forecast shall be monitored by the Contractor on a daily basis. The National Weather Service forecast shall be used. An alternative weather forecast proposed by the Contractor may be used if approved by the Engineer. If precipitation is predicted prior to the end of the following work day, construction scheduling shall be modified, as required, and functioning control measures shall be deployed prior to the onset of the precipitation.

The Contractor shall implement, year-round and throughout the duration of the project, control measures included in the WPCP for sediment tracking, wind erosion, nonstorm water management, and waste management and disposal.

The Engineer may order the suspension of construction operations which create water pollution if the Contractor fails to conform to the provisions in this section "Water Pollution Control" as determined by the Engineer.

MAINTENANCE

To ensure the proper implementation and functioning of control measures, the Contractor shall regularly inspect and maintain the construction site for the control measures identified in the WPCP. The Contractor shall identify corrective actions and time needed to address any deficient measures or reinitiate any measures that have been discontinued.

The construction site inspection checklist provided in the Preparation Manual shall be used to ensure that the necessary measures are being properly implemented, and to ensure that the control measures are functioning adequately. One copy of each site inspection record shall be submitted to the Engineer.

During the winter season, inspections of the construction site shall be conducted by the Contractor to identify deficient measures, as follows:

- A. Prior to a forecast storm;
- B. After all precipitation which causes runoff capable of carrying sediment from the construction site;
- C. At 24-hour intervals during extended precipitation events; and
- D. Routinely, at a minimum of once every 2 weeks.

If the Contractor or the Engineer identifies a deficiency in the deployment or functioning of an identified control measure, the deficiency shall be corrected immediately. The deficiency may be corrected at a later date and time if requested by the Contractor and approved by the Engineer in writing, but not later than the onset of subsequent precipitation events. The correction of deficiencies shall be at no additional cost to the State.

PAYMENT

Full compensation for conforming to the provisions in this section shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

Those control measures which are shown on the plans and for which there is a contract item of work will be measured and paid for as that contract item of work.

The Engineer will retain an amount equal to 25 percent of the estimated value of the contract work performed during estimate periods in which the Contractor fails to conform to the provisions in this section "Water Pollution Control" as determined by the Engineer.

Retentions for failure to conform to the provisions in this section "Water Pollution Control" shall be in addition to the other retentions provided for in the contract. The amounts retained for failure of the Contractor to conform to the provisions in this section will be released for payment on the next monthly estimate for partial payment following the date that a WPCP has been implemented and maintained and water pollution is adequately controlled, as determined by the Engineer.

10-1.03 COOPERATION

Attention is directed to Section 7-1.14, "Cooperation," and Section 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications and these special provisions.

It is anticipated that following work by other contractors may be in progress adjacent to or within the limits of this project during progress of the work on this contract:

Contract No.	Type of Work	County	Route	KP Begin	KP End
03-430104	TMS/CTV and Ramp Metering	Yolo	50	0.0	5.0
03-2A06U4	Median Barrier	Sac	Var	Var	Var
03-0C1404	Plant Restoration	Sac	50	L3.5	R4.2
03-430104	TMS/CCTV and Ramp Metering	Yol	50	0	5
03-382904	Reconstruct Roadway	Yol	80	14.8	15

10-1.04 PROGRESS SCHEDULE

Progress schedules are required for this contract and shall be submitted in conformance with the provisions in Section 8-1.04, "Progress Schedule," of the Standard Specifications.

10-1.05 OBSTRUCTIONS

Attention is directed to Section 8-1.10, "Utility and Non-Highway Facilities," and Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire or other structure. Regional notification centers include, but are not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert-Northern California (USA)	1-800-642-2444 1-800-227-2600
Underground Service Alert-Southern California (USA)	1-800-422-4133 1-800-227-2600

10-1.06 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES

Flagging, signs, and all other traffic control devices furnished, installed, maintained, and removed when no longer required shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Category 1 traffic control devices are defined as those devices that are small and lightweight (less than 45 kg), and have been in common use for many years. The devices shall be known to be crashworthy by crash testing, crash testing of similar devices, or years of demonstrable safe performance. Category 1 traffic control devices include traffic cones, plastic drums, portable delineators, and channelizers.

If requested by the Engineer, the Contractor shall provide written self-certification for crashworthiness of Category 1 traffic control devices. Self-certification shall be provided by the manufacturer or Contractor and shall include the following: date, Federal Aid number (if applicable), expenditure authorization, district, county, route and kilometer post of project limits; company name of certifying vendor, street address, city, state and zip code; printed name, signature and title of certifying person; and an indication of which Category 1 traffic control devices will be used on the project. The Contractor may obtain a standard form for self certification from the Engineer.

Category 2 traffic control devices are defined as those items that are small and lightweight (less than 45 kg), that are not expected to produce significant vehicular velocity change, but may otherwise be potentially hazardous. Category 2 traffic control devices include: barricades and portable sign supports.

Category 2 devices purchased on or after October 1, 2000 shall be on the Federal Highway Administration (FHWA) Acceptable Crashworthy Category 2 Hardware for Work Zones list. This list is maintained by FHWA and can be located at the following internet address: <http://safety.fhwa.dot.gov/fourthlevel/hardware/listing.cfm?code=workzone>. The Department maintains a secondary list at the following internet address: <http://www.dot.ca.gov/hq/traffops/signtech/signdel/pdf/files.htm>.

Category 2 devices that have not received FHWA acceptance, and were purchased before October 1, 2000, may continue to be used until they complete their useful service life or until January 1, 2003, whichever comes first. Category 2 devices in use that have received FHWA acceptance shall be labeled with the FHWA acceptance letter number and the name of the manufacturer by the start of the project. The label shall be readable. After January 1, 2003, all Category 2 devices without a label shall not be used on the project.

Full compensation for providing self-certification for crashworthiness of Category 1 traffic control devices and labeling Category 2 devices as specified shall be considered as included in the prices paid for the various contract items of work requiring the use of the Category 1 or Category 2 traffic control devices and no additional compensation will be allowed therefor.

10-1.07 CONSTRUCTION AREA SIGNS

Portable construction area signs shall be furnished, installed, maintained, and removed when no longer required in conformance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Attention is directed to the provisions in "Prequalified and Tested Signing and Delineation" of these special provisions.

Whenever work is performed without lane closures or shoulder closures, a 1219 mm x 1219 mm C23 "ROAD WORK AHEAD" or 1219 mm x 1219 mm "SHOULDER WORK AHEAD" and a 914 mm x 457 mm C14 "END ROAD WORK" shall be placed where directed by the Engineer. The C23 or C24 sign installations shall be equipped with flags.

Full compensation for furnishing, placing, maintaining, and removing the construction area signs (excluding detour signs for ramp closures) shall be considered as included in the prices paid for the various contract items of work and no separate payment will be made therefor.

10-1.08 MAINTAINING TRAFFIC

Attention is directed to Sections 7-1.08, "Public Convenience," 7-1.09, "Public Safety," and 12, "Construction Area Traffic Control Devices," of the Standard Specifications and to the provisions in "Public Safety" and "Portable Changeable Message Sign" of these special provisions and these special provisions. Nothing in these special provisions shall be construed as relieving the Contractor from the responsibilities specified in Section 7-1.09.

Lane and ramps closures shall conform to the provisions in section "Traffic Control System for Lane Closure" of these special provisions.

Personal vehicles of the Contractor's employees shall not be parked on the traveled way or shoulders including any section closed to public traffic.

The Contractor shall notify local authorities of the Contractor's intent to begin work at least 5 days before work is begun. The Contractor shall cooperate with local authorities relative to handling traffic through the area and shall make arrangements relative to keeping the working area clear of parked vehicles.

On Routes 5, 50 & 80, a portable changeable message sign shall be placed for each lane, ramp, shoulder closure and detour to next ramp, in advance of the first warning sign as shown on the plans, unless otherwise directed by the Engineer.

Whenever vehicles or equipment are parked on the shoulder within 1.8 m of a traffic lane, the shoulder area shall be closed as shown on the plans.

Lanes and ramps shall be closed only during the hours shown on the charts included in this section "Maintaining Traffic." Except work required under Sections 7-1.08 and 7-1.09, work that interferes with public traffic shall be performed only during the hours shown for lane closures.

The maximum length of lane closure shall be limited to 1.6 km.

The Contractor shall notify the Engineer 7 calendar days prior to a ramp closure. A portable changeable message sign shall be placed a minimum of 7 calendar days in advance of closing the ramps. When ramps are closed, public traffic shall be detoured as directed by the Engineer. When portable changeable message signs are no longer required, they shall be removed as directed by the Engineer.

No two consecutive on-ramps or consecutive off-ramps in the same direction of travel shall be closed at the same time except as otherwise provided in these special provisions and as permitted by the Engineer.

Furnishing, erecting, maintaining, and removing special portable detour signs (SC3) along the detour route as directed by the Engineer will be paid for as extra work as provided in Section 4-1.03 of the Standard Specifications.

At all locations, the full width of the traveled way shall be open for use by public traffic when construction operations are not actively in progress.

Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, November 11th, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday.

Minor deviations from the requirements of this section concerning hours of work which do not significantly change the cost of the work may be permitted upon the written request of the Contractor, if in the opinion of the Engineer, public traffic will be better served and the work expedited. These deviations shall not be adopted by the Contractor until the Engineer has approved the deviations in writing. All other modifications will be made by contract change order.

Chart No. 1 Multilane Lane Requirements																									
Location: EASTBOUND													Location #1: 03-Sac-80-Kp 0.0/3.2												
FROM HOUR TO HOUR	a.m.											p.m.													
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	1	1	1	1	1																2	1	1	1	
Fridays	1	1	1	1	1																		2	2	
Saturdays	1	1	1	1	1	1	1																		
Sundays																					2	2	1	1	
Day before designated legal holiday & Designated legal holidays																									
Legend:																									
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																								
2	Two adjacent lanes open in direction of travel.																								
	No closure allowed.																								
REMARKS: Three Lane Available. Ramp Closures Allowed During Lane Closure.																									

Chart No. 2 Multilane Lane Requirements																									
Location: WESTBOUND													Location #1: 03-Sac-80-Kp 0.0/3.2												
FROM HOUR TO HOUR	a.m.											p.m.													
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	1	1	1	1	1																1	1	1	1	
Fridays	1	1	1	1	1																		1	1	
Saturdays	1	1	1	1	1	1	1																		
Sundays																					2	2	1	1	
Day before designated legal holiday & Designated legal holidays																									
Legend:																									
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																								
2	Two adjacent lanes open in direction of travel.																								
	No closure allowed.																								
REMARKS: Three Lane Available. Ramp Closures Allowed During Lane Closure.																									

Chart No. 3 Multilane Lane Requirements																										
Location: EASTBOUND													Location #2: 03-Sac-50-Kp R3.2/R12.9													
FROM HOUR TO HOUR	a.m.											p.m.														
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Mondays through Thursdays	1	1	1	1	1																3	3	3	2		
Fridays	1	1	1	1	1																			3		
Saturdays	2	1	1	1	1	1	2																			
Sundays																					3	3	3	2		
Day before designated legal holiday & Designated legal holidays																										
Legend:																										
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																									
2	Two adjacent lanes open in direction of travel.																									
3	Three adjacent lanes open in direction of travel.																									
	No closure allowed.																									
REMARKS: Four lane available. Ramp Closures Allowed During Lane Closure.																										

Chart No. 4 Multilane Lane Requirements																										
Location: WESTBOUND													Location #2: 03-Sac-50-Kp R3.2/R8.2 and R9.98/R12.9													
FROM HOUR TO HOUR	a.m.											p.m.														
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Mondays through Thursdays	1	1	1	1	1																3	3	2	2		
Fridays	1	1	1	1	1																		3	2		
Saturdays	1	1	1	1	1	1	2																			
Sundays																					3	3	2	2		
Day before designated legal holiday & Designated legal holidays																										
Legend:																										
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																									
2	Two adjacent lanes open in direction of travel.																									
3	Three adjacent lanes open in direction of travel.																									
	No closure allowed.																									
REMARKS: Four Lane Available. Ramp Closures Allowed During Lane Closure.																										

Chart No. 5 Multilane Lane Requirements																									
Location: WESTBOUND													Location #2: 03-Sac-50-Kp R8.2/R9.98												
FROM HOUR TO HOUR	a.m.											p.m.													
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	1	1	1	1	1																		2	2	
Fridays	1	1	1	1	1																			2	
Saturdays	1	1	1	1	1	1	2																		
Sundays																							2	2	
Day before designated legal holiday & Designated legal holidays																									
Legend:																									
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																								
2	Two adjacent lanes open in direction of travel.																								
	No closure allowed.																								
REMARKS: Three Lane Available. Ramp Closures Allowed During Lane Closure.																									

Chart No. 6 Multilane Lane Requirements																									
Location: NORTHOBOUND													Location #3: 03-Sac-5-Kp 9.66												
FROM HOUR TO HOUR	a.m.												p.m.												
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	1	1	1	1	1																1	1	1	1	
Fridays	1	1	1	1	1																		1	1	
Saturdays	1	1	1	1	1	1	1																		
Sundays																						1	1	1	
Day before designated legal holiday & Designated legal holidays																									
Legend:																									
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																								
	No closure allowed.																								
REMARKS: Two Lanes Available.																									

Chart No. 7 Multilane Lane Requirements																										
Location: SOUTHBOUND													Location #3: 03-Sac-5-Kp 9.66													
FROM HOUR TO HOUR	a.m.												p.m.													
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11		12
Mondays through Thursdays	1	1	1	1	1																1	1	1	1		
Fridays	1	1	1	1	1																		1	1		
Saturdays	1	1	1	1	1	1	1																			
Sundays																							1	1		
Day before designated legal holiday & Designated legal holidays																										
Legend:																										
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																									
	No closure allowed.																									
REMARKS: Two Lanes Available.																										

Chart No. 8 Multilane Lane Requirements																									
Location: Northbound													Location #4: 03-Sac-5-Kp 19.31/26.55												
FROM HOUR TO HOUR	a.m.											p.m.													
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	1	1	1	1	1																2	2	1	1	
Fridays	1	1	1	1	1																		1	1	
Saturdays	1	1	1	1	1	1	2																		
Sundays																					2	2	1	1	
Day before designated legal holiday & Designated legal holidays																									
Legend:																									
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																								
2	Two adjacent lanes open in direction of travel.																								
	No closure allowed.																								
REMARKS: Three Lane Available. Ramp Closures Allowed During Lane Closure.																									

Chart No. 9 Multilane Lane Requirements																									
Location: SOUTHBOUND													Location #4: 03-Sac-5-Kp 19.31/26.55												
FROM HOUR TO HOUR	a.m.											p.m.													
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	1	1	1	1	1																2	2	2	1	
Fridays	1	1	1	1	1																		2	2	
Saturdays	1	1	1	1	1	1	1																		
Sundays																					2	2	2	1	
Day before designated legal holiday & Designated legal holidays																									
Legend:																									
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																								
2	Two adjacent lanes open in direction of travel.																								
	No closure allowed.																								
REMARKS: Three Lane Available. Ramp Closures Allowed During Lane Closure.																									

Chart No. 10 Multilane Lane Requirements																									
Location: EASTBOUND													Location #5: 03-Yol-50-Kp 0.0/2.4												
FROM HOUR TO HOUR	a.m.											p.m.													
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	1	1	1	1	1																2	2	2	1	
Fridays	1	1	1	1	1																		2	2	
Saturdays	1	1	1	1	1	1	1																		
Sundays																					2	2	2	1	
Day before designated legal holiday & Designated legal holidays																									
Legend:																									
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																								
2	Two adjacent lanes open in direction of travel.																								
	No closure allowed.																								
REMARKS: Four Lane Available. Ramp Closures Allowed During Lane Closure.																									

Chart No. 11 Multilane Lane Requirements																									
Location: WESTBOUND													Location #5: 03-Yol-50-Kp 0.0/2.4												
FROM HOUR TO HOUR	a.m.											p.m.													
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	1	1	1	1	1																2	2	2	1	
Fridays	1	1	1	1	1																		2	1	
Saturdays	1	1	1	1	1	1	1																		
Sundays																					2	2	2	1	
Day before designated legal holiday & Designated legal holidays																									
Legend:																									
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																								
2	Two adjacent lanes open in direction of travel.																								
	No closure allowed.																								
REMARKS: Four Lane Available. Ramp Closures Allowed During Lane Closure.																									

Chart No. 12 Multilane Lane Requirements																									
Location: WESTBOUND													Location #6: 03-Yol-80-Kp 14.6/15.5												
FROM HOUR TO HOUR	a.m.											p.m.													
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	1	1	1	1	2																2	2	2	1	
Fridays	1	1	1	1	2																		2	2	
Saturdays	1	1	1	1	1	1	2																		
Sundays																								2	
Day before designated legal holiday & Designated legal holidays																									
Legend:																									
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																								
2	Two adjacent lanes open in direction of travel.																								
	No closure allowed.																								
REMARKS: Three Lane Available. Ramp Closures Allowed During Lane Closure.																									

Chart No. 13 Multilane Lane Requirements																										
Location: EASTBOUND													Location #2: 03-Sac-50-Kp R3.2/R12.9													
FROM HOUR TO HOUR	a.m.											p.m.														
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Mondays through Thursdays	1	1	1	1	1																3	3	3	2		
Fridays	1	1	1	1	1																			3		
Saturdays	2	1	1	1	1	1	2																	2		
Sundays	2	1	1	1	1	1	1	1	1												3	3	3	2		
Day before designated legal holiday & Designated legal holidays																										
Legend:																										
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																									
2	Two adjacent lanes open in direction of travel.																									
3	Three adjacent lanes open in direction of travel.																									
	No closure allowed.																									
REMARKS: THIS CHART IS FOR SLAB REPLACEMENT ONLY. Four Lane Availble. Ramp Closures Allowed During Lane Closure.																										

Chart No.14 Multilane Lane Requirements																										
Location: WESTBOUND													Location #2: 03-Sac-50-Kp R3.2/R8.2 and R9.98/R12.9													
FROM HOUR TO HOUR	a.m.												p.m.													
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Mondays through Thursdays	1	1	1	1	1																3	3	2	2		
Fridays	1	1	1	1	1																		3	2		
Saturdays	1	1	1	1	1	1	2																	2		
Sundays	1	1	1	1	1	1	2	2									1				3	3	2	2		
Day before designated legal holiday & Designated legal holidays																										
Legend:																										
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																									
2	Two adjacent lanes open in direction of travel.																									
3	Three adjacent lanes open in direction of travel.																									
	No closure allowed.																									
REMARKS: THIS CHART IS FOR SLAB REPLACEMENT ONLY. Four Lane Availble. Ramp Closures Allowed During Lane Closure.																										

Chart No. 15 Multilane Lane Requirements																									
Location: WESTBOUND													Location #2: 03-Sac-50-Kp R8.2/R9.98												
FROM HOUR TO HOUR	a.m.												p.m.												
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	1	1	1	1	1																		2	2	
Fridays	1	1	1	1	1																			2	
Saturdays	1	1	1	1	1	1	2																		
Sundays	1	1	1	1	1	1																	2	2	
Day before designated legal holiday & Designated legal holidays																									
Legend:																									
1	One lane, a minimum of 3.4 m wide, shall be open in direction of travel.																								
2	Two adjacent lanes open in direction of travel.																								
	No closure allowed.																								
REMARKS: THIS CHART IS FOR SLAB REPLACEMENT ONLY. Three Lane Available. Ramp Closures Allowed During Lane Closure.																									

10-1.09 CLOSURE REQUIREMENTS AND CONDITIONS

Lane closures shall conform to the provisions in "Maintaining Traffic" of these special provisions and these special provisions.

The term closure, as used herein, is defined as the closure of a traffic lane or lanes, including ramp or connector lanes, within a single traffic control system.

CLOSURE SCHEDULE

By noon Monday, the Contractor shall submit a written schedule of planned closures for the following week period, defined as Friday noon through the following Friday noon.

The Closure Schedule shall show the locations and times when the proposed closures are to be in effect. The Contractor shall use the Closure Schedule request forms furnished by the Engineer. Closure Schedules submitted to the Engineer with incomplete, unintelligible or inaccurate information will be returned for correction and resubmittal. The Contractor will be notified of disapproved closures or closures that require coordination with other parties as a condition of approval.

Amendments to the Closure Schedule, including adding additional closures, shall be submitted to the Engineer, in writing, at least 3 working days in advance of a planned closure. Approval of amendments to the Closure Schedule will be at the discretion of the Engineer.

The Contractor shall confirm, in writing, all scheduled closures by no later than 8:00 a.m. 3 working days prior to the date on which the closure is to be made. Approval or denial of scheduled closures will be made no later than 4:00 p.m. 2 working days prior to the date on which the closure is to be made. Closures not confirmed or approved will not be allowed.

Confirmed closures that are cancelled due to unsuitable weather may be rescheduled at the discretion of the Engineer for the following working day.

CONTINGENCY PLAN

The Contractor shall prepare a contingency plan for reopening closures to public traffic. The Contractor shall submit the contingency plan for a given operation to the Engineer within one working day of the Engineer's request.

LATE REOPENING OF CLOSURES

If a closure is not reopened to public traffic by the specified time, work shall be suspended in conformance with the provisions in Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications. The Contractor shall not make any further closures until the Engineer has accepted a work plan, submitted by the Contractor, that will insure that future closures will be reopened to public traffic at the specified time. The Engineer will have 2 working days to accept or

reject the Contractor's proposed work plan. The Contractor will not be entitled to any compensation for the suspension of work resulting from the late reopening of closures.

For each 15-minute interval, or fraction thereof past the time specified to reopen the closure, the Department will deduct the following per interval from moneys due or that may become due the Contractor under the contract:

Location 1 on Sac 80	\$2,900.00
Location 2 on Sac 50	\$14,700.00
Location 4 on Sac 5	\$3,900.00
Location 5 on Yol 50	\$4,500.00
Location 6 on Yol 80	\$8,300.00

COMPENSATION

The Contractor shall notify the Engineer of any delay in the Contractor's operations due to the following conditions, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of those conditions, and the Contractor's loss due to that delay could not have been avoided by rescheduling the affected closure or by judicious handling of forces, equipment and plant, the delay will be considered a right of way delay within the meaning of Section 8-1.09, "Right of Way Delays," and compensation for the delay will be determined in conformance with the provisions in Section 8-1.09:

- A. The Contractor's proposed Closure Schedule is denied and his planned closures are within the time frame allowed for closures in "Maintaining Traffic" of these special provisions, except that the Contractor will not be entitled to any compensation for amendments to the Closure Schedule that are not approved.
- B. The Contractor is denied a confirmed closure.

Should the Engineer direct the Contractor to remove a closure prior to the time designated in the approved Closure Schedule, any delay to the Contractor's schedule due to removal of the closure will be considered a right of way delay within the meaning of Section 8-1.09, "Right of Way Delays," and compensation for the delay will be determined in conformance with the provisions in Section 8-1.09.

10-1.10 CONSTRUCTION ZONE ENHANCED ENFORCEMENT

Construction zone enhanced enforcement will be provided by the State as directed by the Engineer and in conformance with these special provisions. Construction zone enhanced enforcement shall consist of the presence of the California Highway Patrol (CHP) within and near the limits of construction during specified stages of work to control the movement of public traffic within the work zone. A total of 420 hours of California Highway Patrol support is available.

Construction zone enhanced enforcement will be required during any construction operation requiring traffic control as deemed appropriate by the Engineer.

The Contractor shall submit a schedule to the Engineer at least 15 days prior to the performance of work requiring construction zone enhanced enforcement. The schedule shall include all activities requiring construction zone enhanced enforcement and the estimated hours of CHP support required for each activity. The work shall be performed within the number of hours allocated for CHP support.

The Contractor may request additional CHP support for other times and in support of other work activities. The Contractor shall bear the costs and expenses for additional CHP support. The CHP shall be compensated at an agreed rate of \$55.00 per hour per CHP Officer. The agreed rate shall be considered full compensation for each hour, or portion thereof, that a CHP Officer is performing construction area enhanced enforcement. There will be no markup applied to any expenses connected with CHP support. The costs and expenses for requested additional CHP support will be deducted from moneys due to the Contractor.

The Engineer will make all arrangements with the CHP for scheduled and requested additional construction zone enhanced enforcement.

CHP support shall be scheduled in compliance with the provisions in "Closure Requirements and Conditions" of these special provisions. The Contractor will be notified in writing of assigned CHP support when the Contractor is informed of the approval of requested closures.

Cancellations to previously approved closures scheduled to include construction zone enhancement enforcement shall be submitted in writing to the Engineer at least 36 hours prior to the time when the closure is to be in place. Written notices of cancellation for a closure shall be delivered to the Engineer between the hours of 7:00 a.m. and 3:00 p.m., Monday through Friday, excluding designated legal holidays.

Cancellations with less than the 36-hour written notice may result in charges from the CHP. The Contractor shall bear any costs and expenses resulting from cancellations with less than the 36 hour written notice, except cancellations due to weather or circumstances beyond the control of the Contractor, as determined by the Engineer. The CHP shall be

compensated not less than \$50.00 per hour and no greater than 4 hours of overtime pay per CHP Officer scheduled to participate in the construction zone enhancement enforcement that is cancelled. The costs and expenses incurred for late cancellations will be deducted from moneys due or that may become due the Contractor.

The presence of the California Highway Patrol will not relieve the Contractor of responsibility of providing for the safety of the public in conformance with the requirements in Section 7-1.09, "Public Safety," nor relieve the Contractor from the responsibility for damage in conformance with the requirements in Section 7-1.12, "Responsibility for Damage," of the Standard Specifications.

10-1.11 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

A traffic control system shall consist of closing traffic lanes and ramps in conformance with the details shown on the plans, the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under "Maintaining Traffic" and "Construction Area Signs" of these special provisions, and these special provisions.

The provisions in this section will not relieve the Contractor from the responsibility to provide additional devices or take measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications.

Each vehicle used to place, maintain and remove components of a traffic control system on multilane highways shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining or removing components. Vehicles equipped with Type II flashing arrow sign not involved in placing, maintaining or removing components when operated within a stationary lane closure shall only display the caution display mode. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion. The flashing arrow sign shown on the plans shall not be used on vehicles which are being used to place, maintain and remove components of a traffic control system and shall be in place before a lane closure requiring its use is completed.

If components in the traffic control system are displaced or cease to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair the components to the original condition or replace the components and shall restore the components to the original location.

When lane and ramp closures are made for work periods only, at the end of each work period, components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations designated by the Engineer within the limits of the highway right of way.

The contract lump sum price paid for traffic control system shall include full compensation for furnishing all labor (except for flagging costs), materials (including signs), tools, equipment, and incidentals, (including cellular phones and radios) and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of the traffic control system shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer. Flagging costs will be paid for as provided in Section 12-2.02, "Flagging Costs," of the Standard Specifications.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications shall not apply to the item of traffic control system. Adjustments in compensation for traffic control system will be made only for increased or decreased traffic control system required by changes ordered by the Engineer and will be made on the basis of the cost of the increased or decreased traffic control necessary. The adjustment will be made on a force account basis as provided in Section 9-1.03, "Force Account Payment," of the Standard Specifications for increased work and estimated on the same basis in the case of decreased work.

Traffic control system required by work which is classed as extra work, as provided in Section 4-1.03D of the Standard Specifications, will be paid for as a part of the extra work.

10-1.12 TEMPORARY PAVEMENT DELINEATION

Temporary pavement delineation shall be furnished, placed, maintained, and removed in conformance with the provisions in Section 12-3.01, "General," of the Standard Specifications and these special provisions. Nothing in these special provisions shall be construed as reducing the minimum standards specified in the Manual of Traffic Controls published by the Department or as relieving the Contractor from his responsibility as provided in Section 7-1.09, "Public Safety," of the Standard Specifications.

GENERAL

Whenever the work causes obliteration of pavement delineation, temporary or permanent pavement delineation shall be in place prior to opening the traveled way to public traffic. Lane line or centerline pavement delineation shall be provided at all times for traveled ways open to public traffic. On multilane roadways (freeways and expressways), edgeline delineation shall be provided at all times for traveled ways open to public traffic.

Work necessary, including required lines or marks, to establish the alignment of temporary pavement delineation shall be performed by the Contractor. Surfaces to receive temporary pavement delineation shall be dry and free of dirt and loose material. Temporary pavement delineation shall not be applied over existing pavement delineation or other temporary pavement delineation. Temporary pavement delineation shall be maintained until superseded or replaced with a new pattern of temporary pavement delineation or permanent pavement delineation.

Temporary pavement markers and removable traffic tape which conflicts with a new traffic pattern or which is applied to the final layer of surfacing or existing pavement to remain in place shall be removed when no longer required for the direction of public traffic, as determined by the Engineer.

TEMPORARY LANELINE AND CENTERLINE DELINEATION

Whenever lanelines and centerlines are obliterated, the minimum laneline and centerline delineation to be provided shall be temporary raised pavement markers placed at longitudinal intervals of not more than 7.3 m. The temporary raised pavement markers shall be the same color as the laneline or centerline the markers replace. Temporary raised pavement markers shall be, at the option of the Contractor, one of the temporary pavement markers listed for short term day/night use (14 days or less) or long term day/night use (6 months or less) in "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

Temporary raised pavement markers shall be placed in conformance with the manufacturer's instructions and shall be cemented to the surfacing with the adhesive recommended by the manufacturer, except epoxy adhesive shall not be used to place pavement markers in areas where removal of the markers will be required.

Temporary laneline or centerline delineation consisting entirely of temporary raised pavement markers placed on longitudinal intervals of not more than 7.3 m shall be used on lanes open to public traffic for a maximum of 14 days. Prior to the end of the 14 days, the permanent pavement delineation shall be placed. If the permanent pavement delineation is not placed within the 14 days, additional temporary pavement delineation shall be provided at the Contractor's expense. The additional temporary pavement delineation to be provided shall be equivalent to the pattern specified for the permanent pavement delineation for the area, as determined by the Engineer.

Full compensation for furnishing, placing, maintaining, and removing the temporary raised pavement markers used for temporary laneline and centerline delineation and for providing equivalent patterns of permanent traffic lines for these areas when required shall be considered as included in the contract prices paid for the items of work that obliterated the laneline and centerline pavement delineation and no separate payment will be made therefor.

TEMPORARY EDGELINE DELINEATION

Whenever edgelines are obliterated on multilane roadways (freeways and expressways), the edgeline delineation to be provided for that area adjacent to lanes open to public traffic shall consist of, at the option of the Contractor, either solid 100-mm wide traffic stripe of the same color as the stripe the temporary edgeline delineation replaces or shall consist of traffic cones, portable delineators or channelizers placed at longitudinal intervals not to exceed 30 m.

Traffic stripe (100-mm wide) placed for temporary edgeline delineation, which will require removal, shall consist of temporary removable construction grade striping and pavement marking tape listed in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. Temporary removable construction grade striping and pavement marking tape when used shall be applied in conformance with the manufacturer's recommendations. Where removal of the 100-mm wide traffic stripe will not be required, painted traffic stripe used for temporary edgeline delineation shall conform to "Paint Traffic Stripes and Pavement Markings" of these special provisions, Section 84-3, "Painted Traffic Stripes And Pavement Markings," of the Standard Specifications, except for payment and the number of coats shall be, at the option of the Contractor, either one or 2 coats. The quantity of painted traffic stripe used for temporary edgeline delineation will not be included in the quantities of paint traffic stripe to be paid for.

The lateral offset for traffic cones, portable delineators or channelizers used for temporary edgeline delineation shall be determined by the Engineer. If traffic cones or portable delineators are used as temporary pavement delineation for edgelines, the Contractor shall provide personnel to remain at the project site to maintain the cones or delineators during hours of the day that the cones or delineators are in use.

Channelizers used for temporary edgeline delineation shall be the surface mounted type and shall be orange in color. Channelizer bases shall be cemented to the pavement in the same manner provided for cementing pavement markers to pavement in "Pavement Markers" of these special provisions, except epoxy adhesive shall not be used to place channelizers on the top layer of pavement. Channelizers shall be, at the Contractor's option, one of the surface mount types (900 mm) listed in "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

Temporary edgeline delineation shall be removed when no longer required for the direction of public traffic, as determined by the Engineer.

Full compensation for furnishing, placing, maintaining, and removing temporary edgeline delineation shall be considered as included in the contract prices paid for the items of work that obliterated the edgeline pavement delineation and no separate payment will be made therefor.

10-1.13 PORTABLE CHANGEABLE MESSAGE SIGN

Portable changeable message signs shall be furnished, placed, operated, and maintained during each lane, ramp, shoulder closure and detour to preceding/next ramp at locations approved by the Engineer in conformance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

The number of portable changeable message signs required at any one time will be determined by the number of lanes, ramps, shoulder closures and detours to the preceding/next ramp, the Contractor determines are necessary for his operations.

Portable changeable message signs will be paid for on a lump sum basis.

The contract lump sum price paid for portable changeable message signs shall include full compensation for furnishing all labor, material, tools, equipment, and incidentals and for all the compensation for furnishing, placing, operating, maintaining, repairing, replacing, changing messages daily when requested by the Engineer, transporting from location to location, and removing the portable changeable message signs, complete in place, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Attention is directed to "Maintaining Traffic" of these special provisions regarding the use of the portable changeable message signs.

10-1.14 TEMPORARY CRASH CUSHION MODULE

This work shall consist of furnishing, installing, and maintaining sand filled temporary crash cushion modules in groupings or arrays at each location shown on the plans, as specified in these special provisions or where designated by the Engineer. The grouping or array of sand filled modules shall form a complete sand filled temporary crash cushion in conformance with the details shown on the plans and these special provisions.

Attention is directed to "Public Safety", "Order of Work", and "Temporary Railing" of these special provisions.

GENERAL

Whenever the work or the Contractor's operations establishes a fixed obstacle, the exposed fixed obstacle shall be protected with a sand filled temporary crash cushion. The sand filled temporary crash cushion shall be in place prior to opening the lanes adjacent to the fixed obstacle to public traffic.

Sand filled temporary crash cushions shall be maintained in place at each location, including times when work is not actively in progress. Sand filled temporary crash cushions may be removed during a work period for access to the work provided that the exposed fixed obstacle is 4.6 m or more from a lane carrying public traffic and the temporary crash cushion is reset to protect the obstacle prior to the end of the work period in which the fixed obstacle was exposed. When no longer required, as determined by the Engineer, sand filled temporary crash cushions shall be removed from the site of the work.

MATERIALS

At the Contractor's option, the modules for use in sand filled temporary crash cushions shall be either Energite III Inertial Modules, Fitch Inertial Modules or Traffix Sand Barrels manufactured after March 31, 1997, or equal:

- A. Energite III Inertial Modules, manufactured by Energy Absorption Systems, Inc., One East Wacker Drive, Chicago, IL 60601-2076, Telephone 1-312-467-6750, FAX 1-800-770-6755.
 - 1. Distributor (Northern): Traffic Control Service, Inc., 8585 Thys Court, Sacramento, CA 95828, Telephone 1-800-884-8274, FAX 1-916-387-9734
 - 2. Distributor (Southern): Traffic Control Service, Inc., 1881 Betmor Lane, Anaheim, CA 92805, Telephone 1-800-222-8274, FAX 1-714-937-1070.
- B. Fitch Inertial Modules, manufactured by Roadway Safety Service, Inc., 1050 North Rand Road, Wauconda, IL 60084, Telephone 1-800-426-0839, FAX 1-847-487-9820.
 - 1. Distributor (Northern): Traffic Control Service, Inc., 8585 Thys Court, Sacramento, CA 95828, Telephone 1-800-884-8274, FAX 1-916-387-9734
 - 2. Distributor (Southern): Traffic Control Service, Inc., 1881 Betmor Lane, Anaheim, CA 92805, Telephone 1-800-222-8274, FAX 1-714-937-1070.
- C. Traffix Sand Barrels, manufactured by Traffix Devices, Inc., 220 Calle Pintoresco, San Clemente, CA 92672, Telephone 1-949-361-5663, FAX 1-949-361-9205.
 - 1. Russ Enterprises, Inc., 1533 Berger Drive, San Jose, CA 95112, Telephone 1-408-287-4303, FAX 1-408-287-1929.

2. Statewide Safety, P.O. Box 1440, Pismo Beach, CA 93448, Telephone 1-800-559-7080, FAX 1-805-929-5786.

Modules contained in each temporary crash cushion shall be of the same type at each location. The color of the modules shall be the standard yellow color, as furnished by the vendor, with black lids. The modules shall exhibit good workmanship free from structural flaws and objectionable surface defects. The modules need not be new. Good used undamaged modules conforming to color and quality of the types specified herein may be utilized. If used Fitch modules requiring a seal are furnished, the top edge of the seal shall be securely fastened to the wall of the module by a continuous strip of heavy duty tape.

Modules shall be filled with sand in conformance with the manufacturer's directions, and to the sand capacity in kilograms for each module shown on the plans. Sand for filling the modules shall be clean washed concrete sand of commercial quality. At the time of placing in the modules, the sand shall contain not more than 7 percent water as determined by California Test 226.

Modules damaged due to the Contractor's operations shall be repaired immediately by the Contractor at the Contractor's expense. Modules damaged beyond repair, as determined by the Engineer, due to the Contractor's operations shall be removed and replaced by the Contractor at the Contractor's expense.

INSTALLATION

Temporary crash cushion modules shall be placed on movable pallets or frames conforming to the dimensions shown on the plans. The pallets or frames shall provide a full bearing base beneath the modules. The modules and supporting pallets or frames shall not be moved by sliding or skidding along the pavement or bridge deck.

A Type R or P marker panel shall be attached to the front of the crash cushion as shown on the plans, when the closest point of the crash cushion array is within 3.6 m of the traveled way. The marker panel, when required, shall be firmly fastened to the crash cushion with commercial quality hardware or by other methods determined by the Engineer.

At the completion of the project, temporary crash cushion modules, sand filling, pallets or frames, and marker panels shall become the property of the Contractor and shall be removed from the site of the work. Temporary crash cushion modules shall not be installed in the permanent work.

MEASUREMENT AND PAYMENT

Temporary crash cushion modules placed in conformance with the provisions in "Public Safety" of these special provisions will not be measured nor paid for.

10-1.15 REPLACE CONCRETE PAVEMENT (Fast-Setting Hydraulic Cement Concrete)

General — Replace concrete pavement shall consist of removing existing portland cement concrete pavement and, when directed by the Engineer, removing the underlying cement treated base and replacing the removed pavement and base with new Fast Setting Hydraulic Cement Concrete (FSHCC) as shown on the plans and in accordance with these special provisions.

Attention is directed to "order of work" of these special provisions regarding time constraints and specific work requirements to be performed within allotted closure times at each location.

Removing Existing Pavement and Base — The exact limits of concrete pavement removal and replacement will be determined by the Engineer.

Existing concrete pavement and underlying base material removed during a work period shall be replaced, in that same work period, with fast-setting hydraulic cement concrete pavement. In the event, the existing pavement or existing pavement and base are removed and the Contractor is unable, as determined by the Engineer, to construct, finish and cure the new concrete pavement by the time the replacement pavement is to be opened to traffic, the excavation shall be filled and compacted with a temporary roadway structural section as specified in this section "Replace Concrete Pavement."

The outline of concrete to be removed shall be sawed full depth with a power-driven saw except where the concrete is adjacent to an asphalt concrete shoulder. Saw cuts in concrete pavement, if made in work shifts prior to actual removal work shift, shall be made transversely to the travel way. Saw cuts in any concrete pavement slab shall be such that traffic will not dislodge any pieces or segments. The Contractor shall not make any diagonal cuts or notches in the concrete pavement slabs to facilitate removal. Traffic shall not be allowed over sawcut slab sections for more than two calendar days. The Contractor shall be liable for any damage to vehicles when slab material dislodges from pre-sawing of slabs prior to removal.

Concrete pavement shall be removed by non-impact (lift-out) method. Each pavement panel shall be removed in one or more pieces without disturbance or damage to the underlying base.

Regardless of the type of equipment used to remove concrete within the sawed outline, the surface of the concrete to be removed shall not be impacted within 0.5-m of the pavement to remain in place. Pavement and base removal shall be performed without damage to pavement that is to remain in place. Damage to pavement, which is to remain in place, shall be repaired to a condition satisfactory to the Engineer, or the damaged pavement shall be removed and replaced with new

concrete pavement if ordered by the Engineer. Repairing or removing and replacing damaged pavement outside the limits of concrete pavement replacement shall be at the Contractor's expense and will not be measured nor paid for.

Removed materials shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications.

The material remaining in place, after removing pavement and base to the required depth, shall be graded to a uniform plane, watered, and compacted to not less than 95 percent with portable vibratory plate or tamper. The finished surface of the remaining material shall not extend above the grade established by the Engineer. Areas that are low as a result of over excavation during concrete removal shall be filled, at the Contractor's expense, with pavement concrete at the time and in the same operation that the replacement concrete is placed.

Fast Setting Hydraulic Cement Concrete

General — Fast-setting hydraulic cement concrete (FSHCC) shall be a concrete made with hydraulic cement and develops service strength quickly and within the allotted lane closure time. Pavement made with FSHCC shall conform to the provisions in Section 40, "Portland Cement Concrete Pavement," of the Standard Specifications and these special provisions. The requirements in Section 40-1.015, "Cement Content;" Section 40-1.05, "Proportioning;" and Section 90-1.01, "Description;" of the Standard Specifications shall not apply.

The combined aggregate grading used in concrete for replacement pavement shall be either the 37.5-mm maximum or the 25-mm maximum grading.

The FSHCC pavement shall develop a flexural strength (modulus of rupture) of 2.8 MPa or greater before opening to public or contractor traffic and also shall develop a modulus of rupture of not less than 4.2 MPa 7 days after placement. The modulus of rupture shall be considered to be the average of test results of 3 beam specimens determined by California Test 523. Beam specimens may be fabricated using an internal vibrator in conformance with ASTM Designation: C31. No single test shall represent more than the production for one day.

Modulus of rupture at early ages may be determined by estimation based on a correlation determined during trial slab placement or using beams cured under the same atmospheric and temperature conditions as the pavement. Modulus of rupture at other ages shall be determined by using beams cured and tested in accordance with California Test Method 523 except they shall be placed into the sand at between five and 10 times the time to final set or 24 hours whichever is earlier. "Early age" is defined as any time less than 10 times the time to final set as determined by ASTM Designation: C 403 and reported in the mix design submittal. Testing to determine the modulus of rupture will be performed by the Engineer. The modulus of rupture, as determined above, will be the basis for accepting or rejecting the FSHCC pavement for modulus of rupture requirements.

The cement for FSHCC pavement shall have the following requirements:

Property	Test Method	Requirement
Contraction in Air	California Test 527 w/c Ratio =0.39±0.010	0.053% (max)
Mortar Expansion in Water	ASTM: C1038	0.04% (max)
Soluble Chloride	California Test 422	0.05% (max)*
Soluble Sulfates	California Test 417	0.30% (max)*
Thermal Stability	California Test 553	60% (min)
Compressive Strength @ 3 days	ASTM C109	17 MPa

* The test is to be done on a C 109 cube specimen cured at least 14 days and then pulverized to 100% passing the 300µm sieve.

At least 45 days prior to intended use, the Contractor shall furnish a sample of the fast-setting hydraulic cement from each lot proposed for use and all admixtures proposed for use in the quantities ordered by the Engineer.

A Type C accelerating chemical admixture approved by the Engineer and conforming to the requirements in Section 90-4, "Admixtures," of the Standard Specifications may be used. In addition to the admixtures listed on the Department's current list of approved brands of admixtures, citric acid or borax may be used if requested in writing and a sample is submitted to the Engineer. All chemical admixtures, if used, shall be included in all the testing for the requirements listed in the table above.

At least 10 days prior to use, the Contractor shall submit in writing to the Engineer a proposed mix design that shall include:

- (1) The "opening age," the age at which the concrete will achieve the specified strength for opening to public or contractor's traffic;

- (2) The proposed aggregate gradings;
- (3) The mix proportions of hydraulic cement and aggregate;
- (4) The type and amount of chemical admixture;
- (5) The maximum time allowed between batching and placing roadway pavement;
- (6) The range of temperature over which this mix design is effective (10°C maximum);
- (7) The final set time of the concrete; and
- (8) Any special conditions (including water temperature) or instructions.

The Contractor shall submit more than one mix design to include the temperature range when the anticipated atmospheric temperature during placement of the FSHCC pavement exceeds 10°C. In addition, the Contractor shall furnish samples of the hydraulic cement, aggregates and chemical admixture proposed for use in FSHCC pavement in the quantity ordered by the Engineer. The Contractor shall develop and furnish flexural strength gain curves for each proposed mix design. The strength gain curves for up to 7 days must be provided to the Engineer prior to beginning paving with any given mix design. The minimum testing ages for strength gain curves shall be: one hour before opening age, opening age, one hour after opening age, 24 hours, 7 days and 28 days. Strength gain curves may be developed from laboratory prepared samples.

The penetration requirement in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications shall not apply.

Fast-Setting Hydraulic Cement Concrete Proportioning — All weighing, measuring or metering devices used for proportioning materials shall conform to the requirements in Section 9 1.01, "Measurement of Quantities," of the Standard Specifications and these specifications.

The eleventh paragraph of Section 9-1.01, "Measurement of Quantities," of the Standard Specifications shall not apply to FSHCC. When an automatic weighing system is used it shall comply with the requirements for automatic proportioning devices in these specifications. These automatic devices shall be automatic to the extent that the only manual operation required for proportioning the aggregates, hydraulic cement, or mineral admixture for one designated batch or draft is a single operation of a switch or starter.

Aggregates shall be handled and stored in accordance with the requirements of Section 90 5.01, "Storage of Aggregates" of the Standard Specifications. Liquid admixtures shall be proportioned as required in Section 90-4.10, "Proportioning and Dispensing Liquid Admixtures," of the Standard Specifications. Mineral admixtures shall be protected from exposure to moisture until used. Adequate facilities shall be provided to assure that mineral admixtures meeting the specified requirements are kept separate from other mineral admixtures in order to prevent any but the specified mineral admixtures from entering the work. Safe and suitable facilities for sampling mineral admixtures shall be provided at the weigh hopper or in the feed line immediately in advance of the hopper.

Proportioning devices shall be tested in accordance with California Test 109 at the expense of the Contractor as frequently as the Engineer may deem necessary to insure their accuracy. All proportioning devices shall be tested in advance of fast-setting hydraulic cement concrete production and re-tested upon moving to a new location.

Weighing equipment shall be insulated against vibration or movement of other operating equipment. When the plant is in operation, the mass of each draft of material shall not vary from the designated mass by more than the tolerances specified herein.

Aggregate shall be weighed cumulatively and equipment for the weighing of aggregate shall have a zero tolerance of ± 0.5 percent of the designated total batch mass of the aggregate. Equipment for the separate weighing of the hydraulic cement or mineral admixture shall have a zero tolerance of ± 0.5 percent of their designated individual batch drafts. Equipment for measuring water shall have a zero tolerance of ± 0.5 percent of its designated mass or volume.

The mass indicated for any individual batch of material shall not vary from the preselected scale setting by more than the following:

- A. Aggregate shall be within 1.0 percent of the designated total batch mass of the aggregate.
- B. Hydraulic cement shall be within 0.5 percent of its designated batch mass. Mineral admixture shall be within 1.0 percent of its designated batch mass.
- C. Water shall be within 1.5 percent of its designated mass or volume.

Each scale graduation shall be approximately 0.001 of the total capacity of the scale. The capacity of scales for weighing hydraulic cement, mineral admixture, and aggregates shall not exceed that of commercially available scales having single graduations indicating a mass not exceeding the maximum permissible mass variation above, except that no scale shall be required having a capacity of less than 500 kg, with 0.5 kg graduations

Proportioning shall consist of dividing the aggregates into the specified sizes, each stored in a separate bin, and combining them with hydraulic cement, mineral admixture and water as provided in these specifications. Dry ingredients shall be proportioned by mass. Liquid ingredients shall be proportioned by mass or volume.

At the time of batching, all aggregates shall have been dried or drained sufficiently to result in stable moisture content such that no visible separation of water from aggregate will take place during the proportioning process. In no event shall the free moisture content of the fine aggregate at the time of batching exceed 8 percent of its saturated, surface-dry mass.

Should separate supplies of aggregate material of the same size group, but of different moisture content or specific gravity or surface characteristics affecting workability, be available at the proportioning plant, withdrawals shall be made from one supply exclusively and the materials therein completely exhausted before starting upon another.

The hydraulic cement shall be kept separate from the aggregates until it is released for discharge into the mixer. The hydraulic cement shall be free of lumps and clods when discharged into the mixer. Fabric containers used for transportation or proportioning of the hydraulic cement shall be clean and free of residue before reuse.

The weigh systems for the proportioning of the aggregate, the hydraulic cement, and the mineral admixture shall be individual and distinct from all other weigh systems. Each weigh system shall be equipped with a hopper, a lever system, and an indicator to constitute an individual and independent material-weighing device.

For all batches with a volume of one cubic meter or more, the batching equipment shall conform to one of the following combinations:

- A. Single box, scale, and indicator for all aggregates, located at a batch plant. The batch plant may be remote from the hydraulic cement proportioning location.
- B. Platform scale for the weighing of hydraulic cement in a fabric container at a separate location which may be remote from the batch plant or the pour site. The fabric container shall have a capacity of at least 1200 kg. The minimum amount of hydraulic cement to be proportioned shall be one half of the total amount required for the load of fast-setting hydraulic cement concrete being produced.
- C. A silo and weigh system located at the pour site for the proportioning of hydraulic cement. This system shall proportion the hydraulic cement into a weigh hopper or directly into the truck mixer.

In order to check the accuracy of batch masses, the gross mass and tare mass of truck mixers shall be determined when ordered by the Engineer. The equipment shall be weighed at the Contractor's expense on scales designated by the Engineer.

The Contractor shall install and maintain in operating condition an electrically actuated moisture meter that will indicate, on a readily visible scale, changes in the moisture content of the fine aggregate as it is batched within a sensitivity of 0.5 percent by mass of the fine aggregate.

No additional mixing water shall be incorporated into the concrete during hauling or after arrival at the delivery point, unless authorized by the Engineer. If the Engineer authorizes additional water to be incorporated into the concrete, the drum shall be revolved not less than 30 revolutions at mixing speed after the water is added and before discharge is commenced. Water added to the truck mixer at the jobsite shall be measured through a meter that conforms to the requirements of Section 9-1.01, "Measurement of Quantities" of the Standard Specifications.

Aggregate discharged from the several bins shall be controlled by gates or by mechanical conveyors. The means of discharge from the several bins, and from the weigh hopper, shall be interlocked so that not more than one bin can discharge at a time, and that the weigh hopper cannot be discharged until the required quantity from each of the several bins has been deposited in the weigh hopper.

Should the Contractor elect to proportion all ingredients for fast-setting hydraulic cement concrete at a central batch plant the proportioning shall meet the requirements of Section 90-5, "Proportioning" of the Standard Specifications.

Weight Certificates — Each load of FSHCC delivered at the job site shall be accompanied by a weight certificate showing the mix identification number, non-repeating load number, date and time at which the materials were batched, the total amount of water added to the load, the reading of the revolution counter at the time the truck mixer is charged with the hydraulic cement. This weight certificate shall also show the actual scale masses (kilograms) for the ingredients batched. Theoretical or target batch masses shall not be used as a substitute for actual scale masses.

Weight certificates shall be provided in printed form, or if approved by the Engineer, the data may be submitted in electronic media. Electronic media shall be presented in a tab-delimited format on 90-mm diskette with a capacity of at least 1.4 megabytes. Captured data for the ingredients represented by each batch shall be followed by a line-feed carriage-return. There shall be sufficient fields to satisfy the amount of data required by these specifications.

The Contractor may furnish a weight certificate that is accompanied by a separate certificate which lists the actual batch masses or measurements for a load of FSHCC provided that both certificates are: 1) imprinted with the same non-repeating load number that is unique to the contract and; 2) delivered to the pour site with the load.

Weight certificates for fast-setting hydraulic cement concrete, regardless of the proportioning method used, shall include all information necessary to trace the manufacturer, and manufacturer's lot number for the hydraulic cement being used. When proportioned into fabric containers the weight certificates for the hydraulic cement shall contain the date of proportioning, the location of proportioning and the actual net draft mass of the hydraulic cement. When proportioned at the pour site from a storage silo the weight certificates shall contain the date of proportioning, the location of proportioning and the net draft mass of the hydraulic cement used in the load.

All weight certificates furnished by the Contractor shall conform to the requirements of Section 9 - 1.01, "Measurement of Quantities," of the Standard Specifications.

Volumetric Proportioning — When FSHCC is proportioned by volume, the method used shall be in compliance with the following:

Aggregates shall be handled and stored in accordance with the requirements of Section 90-5.01, "Storage of Aggregates" of the Standard Specifications. Liquid admixtures shall be proportioned as required in Section 90-4.10, "Proportioning and Dispensing Liquid Admixtures," of the Standard specifications. Mineral admixtures shall be protected from exposure to moisture until used. Adequate facilities shall be provided to assure that mineral admixtures meeting the specified requirements are kept separate from other mineral admixtures in order to prevent any but the specified mineral admixtures from entering the work. Safe and suitable facilities for sampling mineral admixtures shall be provided at the batch-mixer storage hopper or in the feed line.

Batch-mixer trucks shall be equipped to proportion the cement, water, aggregate, and additives by volume. Aggregate feeders shall be connected directly to the drive on the cement vane feeder. The cement feed rate shall be tied directly to the feed rate for the aggregate and other ingredients. Any change in the ratio of cement to aggregate shall be accomplished by changing the gate opening for the aggregate feed. The drive shaft of the aggregate feeder shall be equipped with a revolution counter reading to the nearest full or partial revolution of the aggregate delivery belt.

The aggregate shall be proportioned using a belt feeder operated with an adjustable cutoff gate delineated to the nearest quarter increment. The height of the gate opening shall be readily determinable. Cement shall be proportioned by a method that meets the accuracy requirements of these specifications. Water shall be proportioned by a meter conforming to Section 9-1.01, "Measurement and Payment" of the Standard Specifications and these specifications.

The delivery rate of aggregate and cement per revolution of the aggregate feeder shall be calibrated at the appropriate gate settings for each batch-mixer truck used on the project and for each aggregate source. The batch-mixer trucks shall be calibrated at 3 different aggregate gate settings that are commensurate with production needs. Two or more calibration runs shall be required at each of the different aggregate gate openings. The actual mass of material delivered for aggregate proportioning device calibrations shall be determined by a platform scale as specified in these special provisions.

The aggregate belt feeder shall deliver aggregate to the mixer with such volumetric consistency that the deviation for any individual aggregate delivery rate check-run shall not exceed 1.0 percent of the mathematical average of all runs for the same gate opening and aggregate type. Test run length shall be at least 500 kg each in duration. Fine aggregate used for calibration shall not be reused for device calibration.

At the time of batching, all aggregates shall have been dried or drained sufficiently to result in stable moisture content such that no visible separation of water from aggregate will take place during the proportioning process. In no event shall the free moisture content of the fine aggregate at the time of batching exceed 8 percent of its saturated, surface-dry mass.

Should separate supplies of aggregate material of the same size group, but of different moisture content or specific gravity or surface characteristics affecting workability, be available at the proportioning plant, withdrawals shall be made from one supply exclusively and the materials completely exhausted before starting to use.

All rotating and reciprocating equipment on batch-mixer trucks shall be covered with metal guards.

The cement proportioning system shall deliver cement to the mixer with such volumetric consistency that the deviation for any individual delivery rate check-run shall be within 1.0 percent of the mathematical average of 3 runs of at least 500 kg each in duration. Cement used for calibration shall not be reused for device calibration.

Water meter accuracy shall be such that, when operating between 50 percent and 100 percent of production capacity, the difference between the indicated mass of water delivered and the actual mass delivered shall not exceed 1.5 percent of the actual mass for each of 2 individual runs of 1200 liters in duration. The water meter shall be calibrated in accordance with California Test 109 and shall be equipped with a resettable totalizer and to display the operating rate.

Calibration tests for aggregate, cement and water proportioning devices shall be weighed on a platform scale located at the calibration site. The weighing of test run calibration material shall be performed on a platform scale having a maximum capacity not exceeding 2.5 tonnes with a maximum graduation size of 0.5 kg. The platform scale shall be error tested within 8 hours of calibration of batch-mixer truck proportioning devices. The error test shall be performed with test masses conforming to the requirements of California Test 109 and shall produce a witness scale that is within 2 graduations of the test mass load. This scale shall be available for use at the production site through out the production period. All equipment needed for the calibration of proportioning systems shall remain available at the production site through out the production period.

The batch-mixer truck shall be equipped so that this accuracy check can be made prior to the first operation for a project and at any other time as directed by the Engineer. Further calibration of proportioning devices shall be required every 30 calendar days after production begins, when the source or type of any ingredient is changed, or the mix design is changed. A two run spot re-calibration of cement proportioning system shall be performed each time 50 tons of cement has passed through the batch-truck mixer.

A meter shall proportion liquid admixture.

The cement storage shall be located immediately before the cement feeder and shall be equipped with a device which will automatically shut down the power to the cement feeder and aggregate belt feeder when the cement storage level is lowered to a point where less than 20 percent of the total volume is left in storage.

The Contractor shall furnish an aggregate moisture determination at least every 2 hours of the proportioning and mixing operation. Moisture determinations shall be recorded and presented to the Engineer at the end of the production shift.

Each aggregate storage bin shall be equipped with a device which will automatically shut down the power to the aggregate belt feeder when the aggregate storage level is lowered to a point where less than 20 percent of the total volume is left in storage.

All indicators required by these specifications shall be in working order prior to commencing the proportioning and mixing operations and shall be visible while standing near the batch-mixer truck.

In addition to the requirements of the fourth paragraph of Section 5-1.10, "Equipment and Plants," of the Standard Specifications, the identifying number of batch-mixer trucks shall be at least 75 mm in height, located on the front and rear of the vehicle.

Volumetric proportioned FSHCC shall be mixed in a mechanically operated mixer of adequate size and power for the type of FSHCC to be placed. Mixers may be of the auger type and shall be operated uniformly at the mixing speed recommended by the manufacturer. Mixers that have an accumulation of hard concrete or mortar shall not be used. Other types of mixers may be used provided the mixing quality meets the requirements of these special provisions.

The charge or the rate of feed to the mixer shall not exceed that which will permit complete mixing of all of the material. Dead areas in the mixer, in which the material does not move or is not sufficiently agitated, shall be corrected by a reduction in the volume of material or by other adjustments. The mixer shall be designed to provide sufficient mixing action and movement to the mixture to produce properly mixed FSHCC and mixing shall continue until a homogeneous mixture of thoroughly and uniformly dispersed ingredients of unchanging appearance is produced at discharge from the mixer. There shall be no lumps or evidence of non-dispersed cement at discharge from the mixer. No water shall be added to the FSHCC after discharge from the mixer.

Equipment having components made of aluminum or magnesium alloys, which would have contact with plastic concrete during mixing, transporting FSHCC, shall not be used.

Uniformity of concrete mixtures will be determined by differences in penetration as determined by California Test 533. The difference in penetration, determined by comparing penetration tests on 2 samples of mixed concrete from the same batch or truck mixer load, shall not exceed 10 mm. The Contractor, at the Contractor's expense, shall furnish samples of the freshly mixed concrete and provide satisfactory facilities for obtaining the samples.

Ice shall not be used to cool the concrete. When ice is used to cool water used in the mix, all of the ice shall be melted before entering the mixer.

Cement shall be proportioned and charged into the mixer by means that will not result either in loss of cement due to the effect of wind, or in accumulation of cement on surfaces of conveyors or hoppers, or in other conditions which reduce or vary the required quantity of cement in the concrete mixture.

Each mixer shall have attached thereto in a prominent place a metal plate or plates on which is plainly marked the various uses for which the equipment is designed, the manufacturer's guaranteed capacity of the mixer in terms of the volume of mixed concrete and the speed of rotation of the mixer.

The consistency and workability of the mixed concrete upon discharge at the delivery point shall be suitable for adequate placement and consolidation in place.

Information generated by volumetric proportioning devices shall not be used for payment calculations.

A one-line report shall be generated at each 15-minute interval, during production, which list the information required below. The report shall be presented to the Engineer at the completion of the production shift.

- a. Mass of cement per revolution count,
- b. Mass of each aggregate size per revolution count,
- c. Gate openings for each aggregate size being used,
- d. Mass of water added to the concrete per revolution count,
- e. Moisture content of each aggregate size being used,
- f. Individual volume of all other admixtures per revolution count,
- g. Time of day,
- h. Day of week,
- i. Batch-mixer truck identification,
- j. Name of supplier,
- k. Specific type, size, or designation of concrete being produced,
- l. source of the individual aggregates sizes being used,
- m. Source, brand and type of the cement being used,
- n. Source, brand and type of individual admixtures being used,
- o. Name and signature of operator

The report items required may be input by hand into a pre-printed form or captured and printed by a proportioning controller.

Spreading, Compacting and Shaping — .

FSHCC to be constructed contiguous with an existing parallel concrete pavement not constructed as part of the contract shall be spread, compacted, and shaped so that completed pavement will conform to the thickness and cross section requirements of the plans and specifications and to the following:

The elevation of the pavement surface shall be such that water will not pond on either side of the longitudinal contact joint with existing pavement.

The new pavement surface at the longitudinal contact joint shall conform to the elevation of the existing concrete pavement. Any difference in elevation between the new pavement and the existing pavement shall be eliminated by finishing the new pavement within 300-mm of the existing pavement by hand methods. Tests to determine the coefficient of friction of the final textured surface will be made only if the Engineer determines by visual inspection that the final texturing may not have produced a surface having the specified coefficient of friction. Any tests to determine the coefficient of friction will be made after the pavement is opened to public traffic, but not later than 5 days after concrete placement.

Transverse straightedge and longitudinal straightedge, will not apply to the pavement surface within 300-mm of the existing concrete pavement. Longitudinal straightedge requirements of Section 40-1.10, "Final Finishing," of Standard Specifications shall be applied at transverse contact joints with existing concrete pavement and the straightedge is to be placed with the midpoint coincident with the joints. Pavement not meeting this straightedge requirement shall be corrected within 48 hours by grinding or other methods, as approved by the Engineer.

Profiles of the completed pavement surface specified in Section 40-1.10, "Final Finishing," of Standard Specifications will not be required. The Profile Index requirements of Section 40-1.10, "Final Finishing," of Standard Specifications shall not apply.

FSHCC for the full paving width shall be effectively consolidated with surface vibrators, internal vibrators, or by some other method of consolidation that produces equivalent results without segregation. Consolidation of the FSHCC shall be by means of high-frequency internal vibrators after it is deposited on the subgrade. Vibrating shall be done with care and in such manner to assure adequate consolidation adjacent to forms and uniformly across the full paving width. Use of vibrators for shifting of the mass of FSHCC will not be permitted. When vibrators are used to consolidate fast-setting hydraulic concrete, the rate of vibration shall be not less than 3500 cycles per minute for surface vibrators and shall be not less than 5000 cycles per minute for internal vibrators. Amplitude of vibration shall be sufficient to be perceptible on the surface of FSHCC more than 0.3 m from the vibrating element. The Contractor shall furnish a tachometer or other suitable device for measuring and indicating frequency of vibration.

Vibrators shall not rest on new pavement or side forms. Power to vibrators shall be connected so that vibration ceases when forward or backward motion of the machine is stopped.

FSHCC shall be spread and shaped by any suitable powered finishing machines, supplemented by handwork as necessary. Methods of spreading, shaping and compacting that result in segregation, voids or rock pockets shall be discontinued, and the Contractor shall adopt methods which will produce dense homogeneous pavement conforming to required cross section.

Joints — Prior to placing concrete against existing concrete, a 6-mm thick commercial quality polyethylene flexible foam expansion joint filler shall be placed across the original transverse joint faces and extend the full depth of the excavation with the top of the joint filler flush with the top of pavement. The joint filler shall be secured to the face of the existing pavement joint face by any method that will hold the joint filler in place during placement of concrete.

Transverse weakened plane joints in pavement widening shall be constructed to match the spacing and skew of the weakened plane joints in the existing pavement. The provisions in the second and third paragraphs in Section 40-1.08B, "Weakened Plane Joints," of the Standard Specifications and the provisions in the third paragraph in Section 40-1.08B(1), "Sawing Method," shall not apply. Sawing of weakened plane joints shall be completed within 2 hours of completion of final finishing. The minimum depth of the cut for the weakened plane joint shall be one third of the section depth. .

Curing Method — The method of cure for replacement pavement shall be as recommended by the manufacturer of the hydraulic cement and approved by the Engineer.

Temporary Roadway Structural Section — The Contractor shall provide, at the job site, a sufficient standby quantity, as determined by the Engineer, of asphalt concrete and aggregate base for construction of a temporary roadway structural section where existing pavement is being replaced. If Contractor elects, a full section of asphalt concrete can also be placed as a temporary roadway structural section. The temporary structural section shall be maintained, and later removed as a first order of work when the Contractor is able to construct and cure the new concrete pavement replacement within the prescribed time limit. The temporary structural section shall consist of 90-mm thick asphalt concrete over aggregate base.

The aggregate base for the temporary structural section shall be produced from commercial quality aggregates consisting of broken stone, crushed gravel, natural rough-surfaced gravel or reclaimed concrete and sand, or any combination thereof. The grading of the aggregate base shall conform to the 19-mm maximum grading specified in Section 26-1.02A, "Class 2 Aggregate Base," of the Standard Specifications.

Aggregate base and asphalt concrete for the temporary structural section shall be spread and compacted by methods that will produce a well-compacted, uniform base, free from pockets of coarse or fine material and a surface of uniform smoothness, texture, and density. The aggregate base may be spread and compacted in one layer and the asphalt concrete may be spread and compacted in one layer. The finished surface of the asphalt concrete shall not vary more than 15 mm from the lower edge of a straightedge, 3.6 m \pm 0.06-m long, placed parallel with the centerline and shall match the elevation of the existing concrete pavement along the joint between the existing pavement and temporary surfacing. At the option of the , FSHCC not conforming to these special provisions for Fast Setting Hydraulic Cement Concrete may be used for temporary structural section.

The material from the removed temporary structural section shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications except that removed aggregate base may be stockpiled at the job site and reused for construction of another temporary structural section. When no longer required, standby material or stockpiled material for construction of temporary structural sections shall be removed and disposed of outside the right of way in accordance with Section 7-1.13 of the Standard Specifications.

CONTRACTOR PROCESS CONTROL

General — The Contractor shall establish, provide and maintain a quality control system that will provide assurance to the Engineer that all materials and completed construction conform to the contract requirements specified herein. The Contractor shall also be responsible for the quality of all component materials contained within replacement pavement, complete in place, including those procured from subcontractors or vendors.

At least 14 days prior to the placement of the trial slab the Contractor shall submit to the Engineer for approval a complete and written Quality Control Plan that shall be used to ensure the quality of the product and the work. At the request of the Engineer or Contractor, the Contractor and the Quality Control Managers shall meet with the Engineer to discuss the Quality Control Plan.

If in the judgment of the Engineer the Contractor has not implemented or is not complying with the approved Quality Control Plan, production and placement shall be suspended. Production and placement shall resume with the Engineer's approval.

Quality Control Plan

The Contractor shall provide a Quality Control Plan that describes the procedures which the Contractor will use to control the production process, to determine when changes to the production process are needed, and the procedures proposed to be used to implement the required changes for replacement pavement. The Quality Control Plan shall also include an outline for the placement and testing of the trial slab.

Replacement pavement production and placement shall not begin until the Quality Control Plan has been approved by the Engineer. Approval of the Quality Control Plan will be based on the inclusion of all required information. Approval of the Quality Control Plan does not imply any warranty by the Engineer that adherence to the plan will result in production of replacement pavement that complies with these specifications. It shall remain the responsibility of the Contractor to demonstrate such compliance.

The Quality Control Plan shall include the names and qualifications of 2 Quality Control Managers. The Quality Control Managers shall be responsible for the administration of the Quality Control Plan. The Quality Control Managers shall have a current ACI certification for inspection and testing of concrete. All sampling, inspection and test reports shall be reviewed and signed by the Quality Control Manager responsible for the production period involved prior to submittal to the Engineer. At least one of the Quality Control Managers shall be present for all stages of design, trial slab construction, during production and construction of replacement pavement and for all meetings between the Contractor and Engineer relating to production, placement or testing of replacement pavement. The Quality Control Manager shall not be a member of the production or paving crew, an inspector or tester on this project during production and placement of replacement pavement. The Quality Control Manager shall have no duties other than those referenced in these special provisions during the production and placement.

The Quality Control Plan shall include an outline of the production, transportation and placement of the replacement pavement. The Quality Control Plan shall include a contingency plan for correcting situations when there is a problem in production, transportation or placement. The Contractor shall have the equipment and personnel present to meet the requirements of the contingency plan. The Quality Control Plan shall contain provisions for determining when placement of replacement pavement will be suspended and temporary roadway will be substituted.

The Quality Control Plan shall include an outline of the sampling, testing and quality control personnel to be used during and after construction of the replacement pavement. At the time of submission of the Quality Control Plan, quality control samplers and testers must be Caltrans qualified through the Independent Assurance Program for the samples and tests for which they will be responsible.

Before production and placement begins, the Contractor, Quality Control Managers, and Engineer shall have a meeting with all production, transportation, placement, inspection, sampling and testing personnel to familiarize them with the requirements of this project. Requirements include the production, transportation and placement processes for replacement pavement; the contingency plan; and sampling and testing. The Contractor will provide the facility for this meeting. The meeting date and location shall be approved by the Engineer. Attendance at this meeting is mandatory for at least the project manager, the quality control managers, the production plant manager, the plant inspector, all concrete delivery truck drivers, the paving superintendent, the paving foreman, the paving machine operator and all inspectors, samplers and testers. All meeting attendees will sign in at the meeting. Production and placement shall not begin nor proceed unless those key personnel have attended the mandatory meeting.

Quality Control Inspection, Sampling and Testing

The Contractor shall perform quality control inspection, sampling and testing to ensure that replacement pavement production and placement conforms to the requirements specified herein.

The Contractor shall provide the required sampling, testing and inspection during all phases of the replacement pavement production and placement. The Contractor shall provide notice so that the Engineer can witness all sampling and testing. The Engineer shall be given unrestricted access to the Contractor's quality control inspectors, samplers, testers and laboratories. During the production and placement period, the Contractor shall provide results of all testing to the Engineer within 15 minutes of completion of testing. The Contractor shall record all inspection, sampling and testing on forms approved by the Engineer. The Contractor shall provide written results of all inspection and testing to the Engineer within 48 hours of completion of each shift of paving and within 24 hours for all 7-day strength tests.

The Contractor shall provide a testing laboratory with adequate equipment and personnel for the performance of the quality control tests. This laboratory shall be located at a location approved by the Engineer and such that the prompt testing requirements can be met. All sampling and testing equipment shall be maintained in proper working condition. All sampling shall be performed to the standards of California Test 125. The Quality Control Plan shall include a list of the equipment to be used, the method of testing flexural strength, the names and certifications of the sampling and testing personnel and the location of the laboratory and testing equipment during and after the paving operation.

Testing laboratories and equipment and sampling and testing personnel shall conform to the requirements of the Department's Independent Assurance Program.

Trial Slab and Process Control Testing

Prior to construction of FSHCC pavement, the Contractor shall construct one or more trial slabs under conditions similar to those which will exist during pavement replacement, for each mix design, to show that the personnel and equipment and the mixing, placing, curing, and sawing techniques will produce a concrete pavement conforming to these special provisions in the anticipated time period under similar atmospheric and temperature conditions as pavement construction and to establish the correlation described below. During production and placement, the Contractor shall conform to the requirements of these special provisions and to the procedure outlined in the Quality Control Plan to ensure that mixing, transporting, placing, finishing, curing and sawing techniques and that the personnel and equipment to be used will produce replacement pavement conforming to these special provisions.

Trial Slab

The trial slab shall be constructed using the approved mix design, admixtures and conditions for batching. During construction of the trial slab, the Contractor shall demonstrate placement at the minimum and maximum times allowed from batching to placement. The Contractor shall not proceed to placing FSHCC pavement within the roadway until a trial slab has been constructed that meets the requirements of these special provisions.

The trial slab of replacement pavement shall have dimensions of not less than 3.6 m by 12.5 m and shall be 230 mm in thickness. The trial slab shall not be placed on the roadway or within the project limits. The trial slab shall be placed in a location agreed to by the Engineer.

During trial slab construction, the Contractor shall sample the aggregates for gradings, cleanliness value, and sand equivalent. The Contractor will split these samples with the Engineer. Both sets of test results of these samples shall conform to the provisions in Section 90-2.02, "Aggregates," of the Standard Specifications. If the test results do not conform to the requirements, the trial slab will be rejected.

During trial slab construction, beams shall be fabricated within 20 minutes of delivery of concrete. Beams shall be used to determine the early age and 7-day modulus of rupture. Beams fabricated for the early age test shall be cured under the same temperature conditions ($\pm 3^{\circ}\text{C}$) as the actual trial slab. The temperature of the slab and beams shall be monitored and

recorded at time intervals of 5 min or less 25 mm from the top and 25 mm from the bottom until the early age testing is completed. Beams fabricated for the 7-day test shall be cured in accordance with California Test 523 except they shall be placed into the sand at between five and 10 times the time to final set or 24 hours whichever is earlier. Testing will be performed by the Contractor and witnessed by the Engineer. At the Engineer's request, the Contractor shall produce samples for the Engineer to test. The strengths determined from these beams shall be the basis for determining FSHCC pavement production and placement may proceed. Beams failing the early age or 7-day modulus of rupture requirements shall be cause for the Engineer to reject the trial slab and require construction of a new trial slab.

During curing of the trial slab correlation testing shall be done to determine the relation between the modulus of rupture and ASTM Designation: C 805 or C 900 performed on the trial slab. When agreed to by the Contractor and the Engineer C 805 or C 900 shall be used to estimate the modulus of rupture of the pavement, at early ages, based on the correlation. The correlation shall be established by testing at four or more time intervals. At least one test each shall be one hour before and after the opening age and one shall be within 15 min on the opening age. Estimates of modulus of rupture shall be calculated based on a least squares best-fit equation, either linear, exponential or logarithmic, whichever provides the best correlation coefficient (r^2).

The Contractor will outline the location and time; procedure for production, placement and finishing of the fast-setting hydraulic cement concrete pavement; sampling, sample curing and sample transportation; testing and reporting of test results for the trial slab in the Quality Control Plan.

Process Control and Quality Control Testing

The Contractor shall provide continuous process control and quality control sampling and testing throughout production and placement of replacement pavement.

During production of fast-setting hydraulic cement concrete for use on the roadway, the Contractor shall sample and test aggregates at least once in every 500 cubic meters of replacement pavement produced but not less than one sample per placement shift. The aggregate shall be tested for gradings, cleanliness, and sand equivalent.

During placement of replacement pavement, the Contractor shall fabricate specimens and test for modulus of rupture in the first 25 cubic meters, in the final truckload and at least once in every 100 cubic meters (or part thereof) in between.

During placement of replacement pavement on the roadway, the Contractor shall sample and test yield, penetration, air content and unit weight at least once in every 500 cubic meters of replacement pavement produced but not less than 2 samples per placement shift.

At the Engineer's request, the Contractor shall provide split samples and fabricate beams for the Engineer to test. The cost of sampling, fabricating and transporting extra samples shall be paid as extra work as specified in Section 4-1.03D, "Extra Work," of the Standard Specifications. When, in the opinion of the Engineer, the replacement pavement fails to conform to the mix design requirements or the requirements of these special provisions the Contractor shall provide sample fabrication and testing at the direction of the Engineer. If the material fails to meet requirements of these special provisions, the cost of sampling and testing shall be at the Contractor's expense. If the material meets the requirements of these special provisions, the cost of sampling and testing shall be paid as extra work as specified in Section 4-1.03D of the Standard Specifications.

When beams are used for determining the early age modulus of rupture, they shall be cured under the same conditions as the pavement until one hour before testing before transporting, and stripping molds. Beams fabricated for the 7-day test shall be cured in accordance with California Test 523 and as modified in these special provisions. Modulus of rupture shall be the basis for determining whether replacement pavement production and placement may proceed and will be used for accepting or rejecting the replacement pavement.

At the Engineer's direction, the Contractor shall suspend producing and placing fast-setting concrete pavement if it is determined that further production, placement or attempts at placement will interfere with the time the lane is to be opened to public traffic as designated in "Maintaining Traffic" of these special provisions.

The Contractor shall remove and replace all temporary roadway with replacement pavement, at the Contractor's expense, at a future time agreed to by the Engineer.

Materials resulting from the construction of the trial slab, test specimens, and all rejected replacement pavement shall become the property of the Contractor and shall be removed and disposed outside the highway right of way as provided in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Measurement and Payment — Replace concrete pavement (fast setting hydraulic cement concrete) will be measured in the same manner specified for concrete pavement in Section 40-1.13, "Measurement" except that the volume to be paid for will be calculated based on Engineer's actual field measurements made prior to concrete placement. Replace concrete pavement (fast setting hydraulic cement concrete) will be paid for in the same manner specified for concrete pavement in Section 40-1.14, "Payment," of the Standard Specifications, and these special provisions, except that the provisions in Section 40-1.135, "Pavement Thickness," of the Standard Specifications shall not apply.

All replacement concrete pavement produced and placed during construction of the roadway will be accepted or rejected as follows:

Replacement concrete pavement that has modulus of rupture of 2.3 MPa or greater before the lane is opened to the traffic and a 7 day modulus of rupture of 4.2 MPa or greater shall be accepted and shall be paid at the contract price paid per cubic meter of replace concrete pavement.

Replacement concrete pavement that has a modulus of rupture less than 1.8 MPa when the lane is opened to traffic shall be rejected. Rejected replacement pavement shall be removed and replaced at the contractor's expense.

Payment shall be made according to following table for other combinations of modulus of rupture achieved upon opening to traffic and at 7 days.

Percentage Pay Table

		7-Day Modulus of Rupture (MPa)			
		Greater than or equal to 4.20	3.81 - 4.19	3.41 - 3.80	Less than 3.40
Modulus of Rupture (MPa) at opening to traffic	Greater than or equal to 2.30	100%	95%	90%	80%
	2.01 - 2.29	95%	95%	90%	80%
	1.80 - 2.00	80%	80%	80%	50%
	Less than 1.80	0	0	0	0

Full compensation for removing and disposing of existing concrete pavement and cement treated base; furnishing and disposing of standby materials for construction of a temporary structural section; and constructing, maintaining, removing and disposing of temporary structural sections shall be considered as included in the contract price paid per cubic meter for replace concrete pavement (fast setting hydraulic cement concrete), and no separate payment will be made therefor.

The contract price paid per cubic meter for replace concrete pavement (fast setting hydraulic cement concrete) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved, complete in place, including contractor process control and removal of existing pavement, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.